1899-1908

'lege of Agriculture

and

Mechanic Arts.

Kingston, R. I.

1900.

GENERAL VIEW OF CAMPUS.

TWELFTH ANNUAL REPORT

OF THE

CORPORATION, BOARD OF MANAGERS,

OF THE

R. I. COLLEGE OF AGRICULTURE

AND

MECHANIC ARTS,

MADE TO THE

GENERAL ASSEMBLY AT ITS JANUARY SESSION, 1900.

1899, PART I.

PART II—EXPERIMENT STATION REPORT—IS PRINTED UNDER SEPARATE COVER.

PROVIDENCE, R. I.
E. L. FREEMAN & SONS, PRINTERS TO THE STATE.
1900.

Rhode Island College of Agriculture and Mechanic Arts.

CORPORATION.

HON. MELVILLE BULL.....NEWPORT COUNTY.
HON. C. H. COGGESHALL.....BRISTOL COUNTY.
HON. HENRY L. GREENE.....KENT COUNTY.
HON. BENJAMIN A. JACKSON.....PROVIDENCE COUNTY.
HON. J. V. B. WATSON.....WASHINGTON COUNTY.

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HON. C. H. COGGESHALL, Clerk.....P. O., BRISTOL, R. I.
HON. MELVILLE BULL, Treasurer.....P. O., NEWPORT, R. I.

REPORT.

To His Excellency Elisha Dyer, Governor, and the Honorable General Assembly of the State of Rhode Island and Providence Plantations, at its January Session, 1900:

I have the honor to submit herewith the Twelfth Annual Report of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, as required by law.

HENRY L. GREENE,

President of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts.

FACULTY AND ASSISTANTS.

JOHN HOSEA WASHBURN, PH. D.,

PRESIDENT,

Professor of Agricultural Chemistry.

B. S., Massachusetts Agricultural College, 1878; Graduate student, Brown University, 1880; Graduate student, Massachusetts Agricultural College, 1881-1883; Professor of Chemistry, Storrs Agricultural School, 1883-1887; Student in Göttingen University, 1885 and 1887-1889; Ph. D., Göttingen, 1889; Appointed President, 1890.

HOMER JAY WHEELER, PH. D.,

Professor of Geology.

B. S., Massachusetts Agricultural College, 1883; Assistant Chemist, Massachusetts State Experiment Station, 1883-1887; Graduate student, University of Göttingen, 1887-1889; Ph. D., Göttingen, 1889; Appointed Chemist of Rhode Island Agricultural Experiment Station and Professor of Geology, 1890.

ANNE LUCY BOSWORTH, PH. D.,

Professor of Mathematics.

B. S., Wellesley College, 1890; First Assistant, Amesbury (Mass.) High School, 1890-1892; Appointed Professor of Mathematics, April, 1892; Graduate student at the University of Chicago, summer of 1894 and 1896; Student in Göttingen University, 1898-1899; Ph. D., Göttingen, 1899.

E. JOSEPHINE WATSON, A. M.,

Professor of Languages.

A. B., Smith College, 1882; A. M., The Cornell University, 1883; Assistant in English, Smith College, 1883-1887; Student of North European Languages in Göttingen, 1887-1889; Appointed Professor of Languages, September, 1892; Student of French in Tours, summer of 1895.

WILLIAM ELISHA DRAKE, B. S.,

Professor of Mechanical Engineering.

B. S., Polytechnic Institute, Worcester, 1886; Instructor in Physics and Electricity, Worcester Polytechnic Institute, 1887; Instructor in Woodworking at Pratt Institute, Brooklyn, 1887-1893; Appointed Professor of Mechanical Engineering, 1893.

All salaries of members of the faculty are paid from United States funds.

HARRIET LATHROP MERROW, A. M.,

Professor of Botany.

B. S., Wellesley College, 1886; Teacher of Science, Plymouth (Mass.) High School, 1887-1888; Teacher of Science, Harcourt Place, Gambier, O., 1888-1891; Graduate student, University of Michigan, 1891-1892; A. M., Wellesley College, 1893; Graduate assistant, Botanical Laboratory, University of Michigan, 1893-1894; Appointed Professor of Botany, January, 1895.

ARTHUR AMBER BRIGHAM, PH. D.,

Professor of Agriculture.

B. S., Massachusetts Agricultural College, 1878; Engaged in practical farming, 1878-1888; Professor of Agriculture in the Imperial Agricultural College at Sapporo, Japan, 1888-1893; Graduate student at Göttingen University, 1893-1896; Ph. D., Göttingen, 1896; Appointed Professor of Agriculture, 1896.

GEORGE WILTON FIELD, PH. D.,

Professor of Zoölogy.

A. B., Brown University, 1887, and A. M., 1890; Ph. D., Johns Hopkins University, 1892; Assistant in Biology, Johns Hopkins University, 1891-1892; Occupant of Smithsonian Table at Naples Zoölogical Station, 1892-1893; Student at University of Munich, 1893; Associate Professor of Cellular Biology, Brown University, 1893-1896; Appointed Professor of Zoölogy, 1896.

FRED WALLACE CARD, M. S.,

Professor of Horticulture.

B. S., Cornell University, 1892; M. S., Cornell University, 1893; Assistant Horticulturist, Cornell University Experiment Station, 1893; Associate Professor of Horticulture, University of Nebraska, 1893-1898; Appointed Professor of Horticulture, 1898.

JOHN EMERY BUCHER, A. C., PH. D.,

Associate Professor of Chemistry.

State Normal School, Millersville, Pa., 1887-1888; A. C., Lehigh University, 1891; Ph. D., Johns Hopkins University, 1894; Instructor in Organic Chemistry, Tufts College, 1894-1897 Appointed Associate Professor of Chemistry, 1897.

ARTHUR CURTIS SCOTT, B. S.,

Assistant Professor of Physics.

B. S., R. I. College of Agriculture and Mechanic Arts, 1895; Student at Harvard University, summer course in Physics, 1895; Appointed Instructor in Physics, 1895; Student at Cornell University, summer course in Physics, 1896; Student at Massachusetts Institute of Technology, summer course in Physics, 1897; Student at Harvard University, summer course in Geology, 1897; Appointed Assistant Professor of Physics, 1897.

All salaries of members of the faculty are paid from United States funds.

THOMAS CARROLL RODMAN,

Instructor in Woodwork.

Appointed, 1890.

MABEL DEWITT ELDRED, B. S.,

Instructor in Drawing,

B. S., R. I. College of Agriculture and Mechanic Arts, 1895; Student at Chase Art School, winters of 1897-1898, 1898-1899; Appointed Instructor in Drawing, 1897.

MARY WATKINSON ROCKWELL, B. L.,

Instructor in Languages.

Student at Göttingen, 1887-1889; Graduate, Norwich Free Academy, 1892; Student in France, 1892-1893; B. L., Smith College, 1897; Appointed Instructor in Languages, 1897.

JAMES SIDNEY ALLEN, JR., A. B.,

Instructor in History and Political Science,

A. B., Brown University, 1898; Appointed Instructor in History and Political Science, 1898.

MERCY WOODWORTH SANBORN.*

Instructor in Expression,

Graduate of School of Expression, Boston, Mass., 1898; Graduate student, School of Expression, Boston, 1899; Appointed Instructor in Expression, 1899.

ELIZABETH WATSON KENYON, A. M.,

Instructor in Languages,

B. S., Mt. Holyoke College, 1896; A. M., Brown University, 1897; Instructor in English and History, Middleborough (Mass.) High School, 1898-1900; Appointed Instructor in Languages, 1900.

HOWLAND BURDICK, B. S.,

Assistant in Agriculture and Farm Superintendent,

B. S., R. I. College of Agriculture and Mechanic Arts, 1895; Appointed Assistant in Agriculture, 1897.

MARSHALL HENRY TYLER, B. S.,

Master of the Preparatory Department,

B. S., Amherst College, 1897; Instructor at St. Mark's, 1897-1898; Appointed Master of the Preparatory Department, 1898.

All salaries of members of the faculty are paid from United States funds.

*Left, January, 1900, on account of illness.

GRACE BURTON HAZLEWOOD,

Instructor in Stenography and Typewriting.

Student at Wheaton Seminary, Norton, Mass., 1894-1898; Graduate of Chandler Normal Shorthand School, 1899; Assistant Instructor in Chandler Normal Shorthand School, 1899; Appointed Instructor in Stenography and Typewriting, 1899.

JOHN FRANKLIN KNOWLES, B. S.,

Assistant in Woodwork.

GEORGE BURLEIGH KNIGHT,

Assistant in Ironwork.

Appointed, 1896.

CAPTAIN TIBERIO GARCIA ALOMA,

Assistant Instructor in Spanish.

NATHANIEL HELME,

Meteorologist.

GRADUATE ASSISTANTS.

CARROLL KNOWLES, B. S.,

Assistant in Mechanics.

BLYDON ELLERY KENYON, B. S.,

Assistant in Physics.

LILLIAN MABELLE GEORGE, B. S.,

Librarian.

All salaries of members of the faculty are paid from United States funds.

COLLEGE CALENDAR.

1900.

SPRING TERM.

April 9, 10 A. M. ..... Examination of Conditioned Students.

April 10, 1 P. M. ..... Term begins.

May 11 ..... Arbor Day.

May 30 ..... Memorial Day.

June 17 ..... Baccalaureate Sunday.

June 18 ..... Reading of Cincinnati Orations for Lippitt Prize.

June 19 ..... Commencement.

June 22, 9 A. M., Entrance Examinations for College and Preparatory Department, given at the College; the State Normal School, Providence; and at the School Committee rooms, Clarke Street, Newport.

FALL TERM.

August 31, 9 A. M. ..... Entrance Examinations at the College.

September 18, 9 A. M. ..... Entrance Examinations at the College.

September 18, 10 A. M. ..... Examination of Conditioned Students.

September 19, 1 P. M. ..... Term begins.

November 6 ..... Election Day.

——— ..... Thanksgiving Day.

December 21 ..... Term ends.

1901.

WINTER TERM.

January 2, 10 A. M. ..... Examination of Conditioned Students.
January 2, 1 P. M. ..... Term begins.
January 31 ..... Day of Prayer for Colleges.
February 22 ..... Washington's Birthday.
March 29 ..... Term ends.

SPRING TERM.

April 8, 10 A. M. ..... Examination of Conditioned Students.
April 9, 1 P. M. ..... Term begins.
May 10 ..... Arbor Day.
May 30 ..... Memorial Day.
June 16 ..... Baccalaureate Sunday.
June 18 ..... Commencement.
June 21, 9 A. M ..... Entrance Examinations.

EXPERIMENT STATION STAFF.

JOHN H. WASHBURN, PH. D.....PRESIDENT OF THE COLLEGE.
A. A. BRIGHAM, PH. D.....DIRECTOR AND AGRICULTURIST.
H. J. WHEELER, PH. D.....CHEMIST.
GEORGE W. FIELD, PH. D.....BIOLOGIST.
FRED W. CARD, M. S.....HORTICULTURIST.
BURT L. HARTWELL, B. S.....FIRST ASSISTANT CHEMIST.
GEO. E. ADAMS, B. S.....PHOTOGRAPHER, ASSIST. HORTICULTURIST.
J. A. TILLINGHAST.....ASSISTANT, FIELD EXPERIMENTS.
H. W. MARSHALL, B. S.....ASSISTANT BIOLOGIST.
ALFRED W. BOSWORTH, B. S.....ASSISTANT CHEMIST.
J. A. WARREN.....POULTRYMAN.
NATHANIEL HELME.....METEOROLOGIST.
MILDRED W. HARVEY, B. S.....STENOGRAPHER.
S. ALINE NYE.....STENOGRAPHER.

The EXPERIMENT STATION COUNCIL consists of the President of the College, the Director of the Station, the heads of departments, and their first assistants.

TAFT LABORATORY. DAVIS HALL. BOARDING HALL.

THE COLLEGE.

HISTORY.

IN 1863 the State of Rhode Island accepted from the United States Government the land grant scrip, which gave to each State thirty thousand acres of the public lands for each Senator and Representative in Congress. The land was to be sold by the States or their agents, the proceeds arising from the sale invested, and the annual income derived therefrom was to be "inviolably appropriated by each State which may take and claim the benefit of this act, to the endowment, support and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to Agriculture and Mechanic Arts, in such manner as the Legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

On March 2, 1887, the act known as the Hatch act was passed, appropriating $15,000 annually to each State, for the purpose of establishing an Agricultural Experiment Station in connection with an Agricultural College or School.

From the time of the acceptance by the State of Rhode Island of the land scrip in 1863, there were many people who felt that this State did not offer to young men such advantages for instruction in agriculture and mechanic arts as others afforded that had genuine agricultural and mechanical colleges. So great was the dissatisfaction among the citizens of Rhode Island at the absence

of these educational advantages, that they were determined to have the Hatch Agricultural Experiment Station located at a *bona fide* agricultural educational institution.

The Rhode Island State Agricultural School was established according to Chapter 706 of the Public Laws, passed May 23, 1888.

The United States Congress, on August 30, 1890, passed an act known as the New Morrill bill. This appropriated for the further support of the agricultural and mechanical colleges a sum beginning with $15,000, and continuing, with a yearly increase of $1,000, until the annual appropriation should reach $25,000.

That the school already established might receive the benefit of the act of Congress, the General Assembly amended Chapter 706 of the Public Laws, incorporating the Rhode Island College of Agriculture and Mechanic Arts..

Since September, 1892, the institution has been conducted on a college basis, with an entirely new course of study.

On April 19, 1894, the Legislature passed an act authorizing the State treasurer to pay Brown University the sum of $40,000, in consideration of which the university was to turn over to the State the proceeds of the original land grant of 1862, and to withdraw from the United States Supreme Court its suit for the Morrill fund.

On January 27, 1895, the college dormitory was destroyed by fire; but it was replaced by a new granite building, which was ready for use the first of October of the same year, and which is now designated as Davis Hall.

At the January session of the Legislature, 1897, the institution was given an appropriation for a stone building, one hundred and thirty feet by forty feet, practically three stories high. The basement has three rooms used for instruction in photography and physics, and a large room devoted to electrical engineering. On the second floor are recitation rooms, chapel, library and reading-room, and young women's study-room. The third floor contains a large hall for drill and gymnasium purposes, above which are bathrooms and lockers. The hall is also used for assemblies,

whenever larger audiences are expected than the chapel can accommodate. This building is called Lippitt Hall.

OBJECT OF THE INSTITUTION.

The college stands for the idea that technical work, properly taught, possesses educative value equal at least to that furnished by the classics, but that premature specialization is to be avoided if the best results are to be obtained; that technical education, to meet the requirements, must be based upon a sound knowledge of mathematics, the natural sciences, and the English language. The method employed is technical instruction in agriculture, in the mechanic arts, and in the sciences.

There are five courses leading to the degree of Bachelor of Science; the agricultural course, mechanical engineering course, electrical engineering course, chemical course, and biological course. On entering, all regular students take the same course until the winter term of the Freshman year, when a choice is made. The aim of the agricultural course is to fit students not only for practical agriculture but for positions in experiment stations, as teachers, and farm superintendents. To this end thorough instruction is given in science and the application of its principles to agriculture, supplemented by a general training in mathematics and languages. The mechanical course is intended for those wishing to become mechanical engineers, as the electrical course is designed to train electrical engineers. The chemical course offers several special lines of work. A student may prepare himself to become a general chemist or a teacher; may specialize in agricultural chemistry with a view to experiment station work; or may elect industrial chemistry with the idea of obtaining a position in a factory, dyeing establishment, or along other technical lines. The biological course offers so many electives that it is well adapted to prepare students for high-school teaching in general science, mathematics, and English. It is especially adapted to fit one to pursue a course in medicine or

veterinary science, to become an assistant in an experiment station, or to take a government position in some special department of science.

PREPARATORY DEPARTMENT.

Young men and young women from farm homes, who have had no opportunity to receive high-school instruction, may enter the college through the preparatory department.

SPECIAL COURSES.

Short courses in agriculture and certain lines of mechanics, and special work in science, are open to those unable to take the regular college work. For these courses no examination is required, except such as will satisfy the professor in charge of any branch chosen that the applicant is prepared to derive benefit from the work he wishes to elect. Whenever possible, however, students are urged to enter one of the courses leading to a degree. The arrangement of these courses is the result of careful thought and long experience as to the best combination of studies to fit one for the various occupations in which a technical education is required; and it is believed that no such thorough preparation can be obtained from special courses selected by the student.

Among the special courses offered are the Summer School for Nature Study, of two weeks, designed for the teachers of Rhode Island; the Poultry School of six weeks, and the Horticultural School of two weeks. Payment of tuition fees for those outside the State and board for the full time is required in advance of students registering in the special courses. Those interested in these courses will please send for circulars giving a full description of them. Address the president.

REQUIREMENTS FOR ADMISSION TO PREPARATORY DEPARTMENT, 1900.

Candidates for admission must bring testimonials of good character, and must be not less than fifteen years of age.

For admission to the first year in the preparatory department,

oral or written examinations will be given in arithmetic, geography, English grammar, and United States history. In the arithmetic examination special attention will be paid to common and decimal fractions, denominate numbers, percentage, and interest. Whitney and Lockwood's English grammar, and Fiske's United States history are recommended. In English, each candidate will be required to answer certain questions in grammar, and to write a short composition correct in spelling, capitalization, punctuation, and paragraphing, on a subject announced at the time of the examination. This composition will be expected to show familiarity with the following works: Hawthorne's The House of the Seven Gables; Whittier's Snow-Bound, The Tent on the Beach, and Other Poems; DeFoe's Robinson Crusoe; The Arabian Nights; Macaulay's Lays of Ancient Rome. Useful editions of these works will be found either in the Riverside School Library or the Riverside Literature Series, published by Houghton, Mifflin and Company.

Students wishing to enter the second-year class in this school will be examined in geography and United States history as mentioned above, advanced arithmetic, algebra to quadratics, and English. In 1900 the English requirements will cover Shakespeare's Merchant of Venice and Macbeth; Pope's Iliad, books I, VI, XXII, XXIV; Addison's The Sir Roger de Coverley Papers; Scott's Ivanhoe; and Cooper's The Last of the Mohicans. In 1901, Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Macaulay's Essays on Milton and Addison; Burke's Speech on Conciliation; Eliot's Silas Marner; Tennyson's The Princess; and Goldsmith's The Vicar of Wakefield.

Any mature person who can satisfy the examining committee that he has capacity and training to perform the work he wishes to do may enter on probation, and take the examination later according to the discretion of the examining committee.

Students entering the preparatory department may take, together with the regular studies of this course, any other work from the college courses for which they are prepared.

REQUIREMENTS FOR ADMISSION TO THE COLLEGE, 1900.

Graduates from high schools, and other schools of similar grade, are admitted without examination, on certificates which are filled out by their principals. The candidate must apply to the college for the certificate, giving the address of his principal who is to certify him. The college will correspond with the principal, furnishing blanks for him to fill. Graduates from high schools are not admitted on diploma.

Candidates not entering the Freshman class on certificate will be examined in arithmetic; algebra; plane geometry; English grammar; advanced English; one year of German, French, or Latin.

In the arithmetic examination especial attention will be paid to fractions, the metric system, simple and compound proportion, and square and cube root; thorough drill in mental arithmetic will be necessary. The applicant should have mastered all of Wells's Academic or Wentworth's School Algebra, and Wells's Plane Geometry, or their equivalents.

The English requirements are those prescribed for entrance to the New England colleges. The student will be expected to show familiarity with the works named below. These are divided into two classes. Those marked (*a*) are to be read, and the candidate will be required to show a general knowledge of their subject-matter, and of the lives of the authors. Those marked (*b*) are to be thoroughly studied, so that the candidate will be able to pass an examination upon their subject-matter and structure. To be acceptable, the candidate's paper must show a good knowledge of spelling, capitalization, punctuation, sentence and paragraph structure. The books prescribed for 1900 are the following: (*a*) Addison's The Sir Roger de Coverley Papers; Cooper's The Last of the Mohicans; De Quincey's The Flight of a Tartar Tribe; Dryden's Palamon and Arcite; Goldsmith's The Vicar of Wakefield; Lowell's The Vision of Sir Launfal; Pope's Iliad, books I, VI, XXII, XXIV; Scott's Ivanhoe; Tennyson's The Princess. (*b*) Burke's Speech on Conciliation with America; Macaulay's

Essays on Milton and Addison; Milton's Paradise Lost, books I and II; Shakespeare's Macbeth. For 1901: (*a*) Addison's The Sir Roger de Coverley Papers; Coleridge's The Ancient Mariner; Cooper's The Last of the Mohicans; Eliot's Silas Marner; Goldsmith's The Vicar of Wakefield; Lowell's The Vision of Sir Launfal; Pope's Iliad, books I, VI, XXII, XXIV; Scott's Ivanhoe; Shakespeare's The Merchant of Venice; Tennyson's The Princess. (*b*) Burke's Speech on Conciliation with America; Macaulay's Essays on Milton and Addison; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Shakespeare's Macbeth. For 1902: (*a*) Addison's The Sir Roger de Coverley Papers; Coleridge's The Ancient Mariner; Cooper's The Last of the Mohicans; Eliot's Silas Marner; Goldsmith's The Vicar of Wakefield; Lowell's The Vision of Sir Launfal; Pope's Iliad, books I, VI, XXII and XXIV; Scott's Ivanhoe; Shakespeare's The Merchant of Venice; Tennyson's The Princess. (*b*) Same as 1901. For 1903: (*a*) Addison's The Sir Roger de Coverley Papers; Carlyle's Essay on Burns; Coleridge's The Ancient Mariner; Eliot's Silas Marner; Goldsmith's The Vicar of Wakefield; Lowell's The Vision of Sir Launfal; Scott's Ivanhoe; Shakespeare's The Merchant of Venice, and Julius Cæsar; Tennyson's The Princess. (*b*) Same as 1901. The language requirements cover one year's work in either French, German or Latin; and Latin is recommended. In French and German, this requirement comprises the essentials of grammar, easy reading, and elementary composition. In Latin, the candidate must be prepared to study Cæsar. The following text-books are recommended: Chardenal's Complete French Course, Lyon and De Larpent's Primary French Translation Book; the Joynes-Meissner German Grammar, Part I, or Collar's Shorter Eysenbach, Guerber's Märchen und Erzählungen, Part I; Collar and Daniel's First Latin Book or Lindsay and Rollins's Easy Latin Lessons.

ADMISSION TO ADVANCED STANDING.

Candidates may enter any of the higher classes for which they are prepared.

OPPORTUNITIES OFFERED TO WOMEN.

The courses offered to men are open to women, together with special courses. The women's dormitory will accommodate a limited number of students, and the college will on application find boarding-places for others in private families in town. Special waiting and study rooms are provided for the women who are day students.

DOMESTIC SCIENCE.

The college offers no separate course by the title of domestic science, but all young women candidates for a degree may receive instruction in domestic science as follows. In the fall term of the Sophmore year, there is offered a three-hour elective in the construction, ventilation, plumbing, and heating of homes and school buildings. In chemistry, the adulteration of foods is studied; and analyses of milk, water, dairy products, and fruits are made. Electives are offered in physiological chemistry, sanitary chemistry, and the chemistry of cooking. Hygiene and the physiology of digestion are treated in the courses in zoölogy.

EXPENSES FOR WOMEN.

Board, including room rent, is three dollars per week. Fuel and lights are supplied at cost. Rooms are provided with necessary furniture, including mattresses, but no other bedding material. Other expenses are as given below. The women have an opportunity to do their own washing and ironing. A Singer and a Household sewing-machine are at the disposal of all those living at the dormitory.

EXPENSES.*

Tuition is free to all Rhode Island students. The regular expenses are tabulated below:

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* For exceptions in expenses for women, see above.

WATSON HOUSE. FARM BUILDINGS.

		Per year. Minimum.	Maximum.
Men's Dormitory.	Board, $3 per week, for 36 weeks	$108 00	$108 00
	Room rent, $3 per term	9 00	9 00
	Light, $1 to $3 per term	3 00	9 00
	Fuel, spring and fall terms, each $3; winter term, $6	12 00	12 00
Books		15 00	30 00
Washing, 30c. to 60c. per week		10 80	21 60
Uniform for military drill, $15		7 50	30 00
Reading-room tax, 25c. per term		75	75
General expense, for damage in building, etc., 50c. per term		1 50	1 50
Laboratory fees, $2 to $10 per term		6 00	30 00
		$173 55	$251 85

The amount of laboratory fees depends upon the laboratory work taken each term. One dollar per term is charged for each of the following: botanical, zoölogical, and physical laboratories; carpenter shop; wood-turning, forge shop, machine shop, and wood-carving. This pays for the material ordinarily used in class work and for the wear and care of tools and apparatus. Any person who breaks apparatus or tools, through carelessness or neglect of instructions, will be charged the cost of the same. The chemical laboratory fee is three dollars per term for qualitative, quantitative, and organic laboratory work. This covers general chemicals and use of apparatus. Students are required to pay for breakage and for any chemicals they may use in making special preparations for themselves. Graduates pay the cost of diplomas, five dollars. *No diploma will be issued until the candidate has paid all term bills.* Every able-bodied male student is required to drill and to wear a uniform. The uniform must be paid for immediately on entering the college, when the students are measured for the suits. When worn only on drill and properly cared for, one uniform may last two or more years. The student may, however, wear his uniform all the time. Day students are required to deposit five dollars per term in advance. The college conveys

students daily to and from the railroad station free of charge. Once at the beginning and end of each term, a team conveys trunks to and from the station. Boarding students shall pay term bills in advance, deposit fifty dollars each term, or give bond for two hundred dollars for the payment of all bills. No bond will be accepted from any member of the faculty. A reduction of fifty cents per week on board is allowed students going home Friday afternoon and returning Monday forenoon, provided that notice of the intended absence is given in advance. Those failing to give such notice will be charged full price for board. No other reduction is made for less than three whole days' absence at one time, and this only when notice is given as above. Fifteen cents extra is charged for each meal sent to a student's room, from sickness or any other cause. *All students in the men's dormitory are required to supply their own furniture and bedding.* The necessary furniture may be obtained at the college when desired. A room may be furnished for from eight to ten dollars. Iron bedsteads three feet wide are included under room-rent. The furniture, if properly kept, may be sold, when the student leaves, for one-half to three-fourths the original price. All clothing should be distinctly marked.

SELF-HELP.

A limited amount of work about the buildings, on the farm, at the experiment station, and in the laboratories, will be furnished to students who desire it, and who prove industrious and trustworthy. Good students, who desire to help in paying their expenses, should be able to earn from twenty-five to one hundred dollars per year, depending upon the amount of time they can spare from their studies. *No work is given to students who have not a fair standing in their classes.* The larger sums can be earned only by students who spend their vacations here at work. These opportunities are offered only to students who show a sense of responsibility in the performance of the duties assigned to them, and a disposition to render a fair equivalent of work for the com-

pensation they receive. Thus far no worthy student has been compelled to leave the institution for lack of means.

DISCIPLINE.

The discipline of the institution has been delegated by the faculty to two joint committees of faculty and students, called the Activity Committees. The committee for the direction of the young women is composed of three women of the faculty and two students; and that for the young men is composed of three men of the faculty and four students, one from each class. Entertainments and exercises which are conducted by both the men and women students, are sanctioned by the conference of these joint committees. It is the duty of the committees to see that the general rules of conduct for the members of the institution are observed. Money paid for dormitory expenses will not be refunded to students dismissed from the dormitory.

REGULATIONS OF THE COLLEGE.

Conditions.—Section 1.—Any student absenting himself from more than ten per cent. of the total number of recitations in any subject shall not be allowed to take his examination in that subject, except by special vote of the faculty, but shall be conditioned.

Section 2.—Examinations of conditioned students shall be held only on the days assigned in the college calendar. Any student who, after such examination, shall still have three or more conditions, shall be obliged to withdraw from the college. Students still having not more than two conditions may take second examinations at the next regular time, and failing to pass, shall have no further opportunity to remove such conditions except by special vote of the faculty.

Section 3.—A student wishing to take an examination to remove a condition must make application for the same to the professor

in whose department the condition was received, at least seven days before the date of examination.

Section 4.—Students, whether regular or special, shall remove entrance conditions to both the preparatory department and the college within a year from the date of entrance, unless excused by the committee on courses of study.

Exemption from Examination.—Section 5.—Students shall be exempt from examination at the end of the term in studies in which their term averages are above eighty per cent.

Thesis.—Section 6.—Every student who is a candidate for a degree shall prepare a thesis, and shall submit it to the president of the college at least one month before the time for granting the degree.

Student Publications.—Section 7.—No student shall publish any article in any college, class, or society publication designed for public circulation, or deliver any address on the college campus attended by persons other than students, without the consent of the president or some person appointed by him for granting such permissions.

Athletics.—Section 8.—No student shall represent the college on the athletic field, or any other organization before the public, who is not regularly registered and in good standing; by good standing is meant conformity to all the rules of the college.

PUBLIC WORSHIP.

The students are expected to be present at chapel exercises every morning, and on Sundays to attend some church at least once a day, or the praise service which is held at the college every Sunday afternoon. Absence from chapel must be reported at the president's office for excuse on Tuesday morning of each week. A branch of the Intercollegiate Young Men's Christian Association is doing good work among the students, as is also the Young Women's Christian Union. Following is a list of speakers who have addressed the students during the past year:

Rev. John E. Tuttle.....Worcester, Mass.
Rev. A. M. Lord.....Providence, R. I.
Prof. Chas. F. Kent, Brown University....Providence, R. I.
Rev. C. J. Burns.....Wakefield, R. I.
Rev. Wallace Nutting.....Providence, R. I.
Rev. W. H. Garth.....Wakefield, R. I.
Rev. J. W. Fobes.....Peace Dale, R. I.
Rev. Parley D. Root.....Wakefield, R. I.
Rev. Alexander McCall.....Briarcliff Manor, N. Y.
Prof. F. W. Very.....Providence, R. I.
Rev. J. H. Holden.....Attleboro, Mass.
Rev. J. Hagadorn Wells.....Kingston, R. I.
Rev. L. F. Randolph.....Hopkinton City, R. I.
Rev. Theodore Snow.....Wakefield, R. I.
Rev. John MacCalman.....Swansea Centre, Mass.
Rev. E. Tallmadge Root.....Providence, R. I.
Rev. F. H. Decker.....Westerly, R. I.
Rev. Frank H. Palmer.....Boston, Mass.
Prin. J. W. V. Rich.....Providence, R. I.
Mr. Eugene W. Lyman, Yale University...New Haven, Conn.
Mr. H. W. Jump, Yale University.....New Haven, Conn.
Mr. Blanchard, Yale University.....New Haven, Conn.
Mr. Butler, Yale University.....New Haven, Conn.
Mr. Geo. R. Montgomery, Yale University..New Haven, Conn.

THE LIPPITT PRIZE.

The Lippitt prize consists of a purse of one hundred dollars, offered through the generosity of ex-Governor Charles Warren Lippitt. This sum is divided into two prizes; the first of sixty, and the second of forty dollars, which are awarded to the best written and delivered essays on the history of Rhode Island in the Revolution. These essays are of the nature of Cincinnati orations, and are read on the Monday preceding commencement. In 1899 the successful competitors were Arthur Earle Munro, Quonochontaug, R. I., first prize; Bertha Douglas Tucker, Swansea Centre, Mass., second prize.

THE LIBRARY.

The library occupies a large room in Lippitt Hall, and numbers about eight thousand volumes. The books are arranged in stacks, to which the students have free access. The Dewey system of classification is used; and a dictionary catalogue gives author, subject, and title. As the library has been from the first intended for reference work, the various departments of instruction have made their selections with the greatest care. Combined with the library is the reading-room, where sixty of the leading periodicals —of literary, scientific, and general interest—are on file. From time to time these are bound, and prove of great value in research work.

The library is open every week day from 7:30 A. M. to 6:00 P. M., with the exception of a half-hour at noon; on Sunday it is open in the afternoon only, from 12:30 to 1:30 and from 2:30 to 5:00. The librarian or her representative is in constant attendance to aid any one in search of information. As the college is an institution designed to further the educational interests of Rhode Island, all residents of the State are urged to use its library.

LOCATION.

The college is situated on a hillside, which furnishes it with quick drainage and a delightful view. It is less than two miles from the railroad station. A macadamized road leads from the grounds to the station, insuring at all times a good walk and drive. The railroad station is situated on the New York, New Haven & Hartford Railroad, with twenty-one trains daily, in the winter, stopping at Kingston, and more in the summer. The town is a very healthful place, five or six miles from the ocean.

THE LIBRARY.

DEPARTMENTS OF INSTRUCTION.

CHEMISTRY.

Instruction in chemistry begins with the Sophomore year and consists of lectures, recitations, and laboratory work; two hours of laboratory work being counted as equivalent to one period of recitation or lecture work. The course in general chemistry extends through the first two terms of this year; three periods per week being devoted to lectures and recitations and one period to laboratory work. The course in qualitative analysis extends through the second and third terms of this year, part of the time being given to lectures and recitations, but the greater part to practical work in the laboratory. The above courses are required of all candidates for a degree, as part of a liberal education, and are preparatory to the subsequent courses, which are designed for students desiring to make chemistry their profession, either as teachers or practical chemists.

The more advanced courses furnish an excellent preliminary basis for the study of medicine, biology, or agriculture.

The first two courses are followed by a course in inorganic preparations, three periods per week in the third term of the Sophomore year. The subject of theoretical chemistry is begun in the general chemistry, and continued in the third term of the Sophomore year, much attention being given to the application of the principles to problems. This subject is continued in a much more advanced way in the first term of the Senior year, a portion of the time being devoted to laboratory work. Quantitative analysis is taken up in the Junior year, both gravimetric and volumetric

work being required. Accuracy in the work is insisted upon. Organic chemistry begins in the first term of the Junior year and extends through five terms. It includes an extended course in organic preparations. The course also affords opportunity for work in gas analysis, metallurgy, mineralogy, blow-pipe analysis, assaying, sanitary chemistry, industrial chemistry, physiological chemistry, agricultural chemistry, toxicology, and textile coloring. In the Senior year, candidates for a degree in the chemical course are required to prepare a thesis on some chemical subject. Agricultural chemistry is required of all agricultural students, and is given during the winter and spring terms of the Junior year and the fall term of the Senior year. The instruction consists of lectures of three exercises per week during the first two terms and three exercises per week of laboratory work during the third term.

The laboratory is thoroughly equipped with apparatus for the above-mentioned courses, and opportunity is given for graduate students to continue work in the above lines beyond that required for a degree. Provision is also made for special students who are unable to spend the time required by the regular courses. They may take such courses as will be of most benefit to them in the line of work they intend to follow. A large number of German, French, and English chemical journals are accessible, thus affording excellent opportunity for research work.

PHYSICS.

Instruction in physics in the college course begins with the first term of the Freshman year, and consists of lectures and recitations attended by all regular students. The various branches grouped under this head are treated both mathematically and experimentally. Mechanics and heat are studied in the fall term, magnetism and electricity in the winter term, and sound and light in the spring term.

The study of advanced physics follows in the Sophomore year,

CORNER OF PHYSICAL LABORATORY.

and is required throughout the year of all students in the electrical engineering course; for the fall and spring terms, of all mechanical course students; and is open as an elective to all students in other courses who have completed course I or its equivalent. Facilities for instruction in physics are of the best. A large room in Lippitt hall is arranged especially for laboratory work.

Photography.—Special instruction in photography is offered as an elective course to students who have an elementary knowledge of physics and chemistry. The course embraces lectures and recitations upon the subject, together with practical methods of photography in the making of negatives and photographs.

A course in advanced photography is open to students who have completed course I, consisting of a more extended study of the chemistry and optics of photography, and laboratory work in making bromide enlargements and lantern slides. This is followed by the theory and use of the microscope and practical work in photo-micography, the manipulation of the projection microscope and the optical lantern.

The department is provided with room and ample apparatus for illustrating and testing every form of light that is in use in projection work, together with apparatus for X-ray photography with either the high frequency induction coil or electrostatic machine.

The theory and practice of color photography are considered, and apparatus is at hand for projection of photographs in colors from nature.

Sanitary engineering.—A course in plumbing, and the heating and ventilation of buildings, is given throughout the Junior and Senior years, alternating with a course in methods of refrigeration and cold storage.

These courses are elective, open to students having a knowledge of elementary physics. They are especially arranged the first term to accommodate the young women of the institution who may desire a knowledge of the principles without the mechanics. The remaining two terms of the year the subjects are treated by lectures and recitations in such a way as to include the necessary

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amount of mechanics, supplemented by experimental laboratory work on different heating and ventilating, or refrigeration and cold storage, systems.

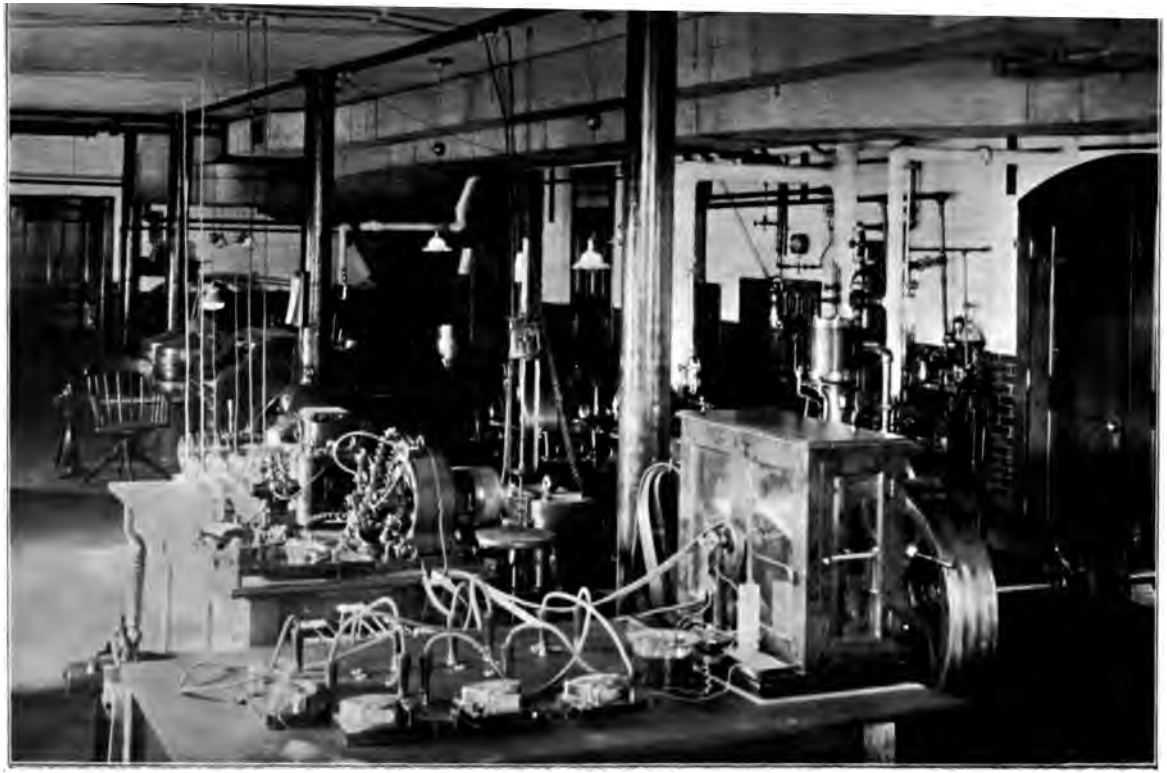
The laboratory is heated by both the direct and the indirect systems, the latter having an eight-foot fan with fifteen H. P. engine for driving the same, the system being arranged to impel both hot and cold air at the same time. These, together with four other systems in use at the college, and minor facilities, such as small fans, anemometers, manometers, etc., make the laboratory work in practical testing of much value to the student.

Experimental laboratory work will be given in refrigeration as far as practicable, and inspection excursions will be made to typical cold storage plants.

ELECTRICAL ENGINEERING.

The course in electrical engineering is offered to students who have completed courses I and II in physics. As a foundation for subsequent work, instruction is given in the theory of electricity, together with thorough consideration of the various technical applications of electricity: including land and submarine telegraphy; the telephone; manipulation of direct and alternating current generators, motors, transformers; electric lighting, and transmission of power; the storage battery, electrolysis, and electroplating. The department has a typical plant for laboratory purposes, containing two sixty-horse power water-tube boilers; two high speed engines of fifty and fifteen horse power; one thirty K. W. 1,000 V. Westinghouse compound alternator with exciter; two 110 V. continuous current generators, one twenty-five K. W. and the other eight K. W.; a storage battery of 110 cells; several small dynamos and motors; arc and incandescent lamps; a good assortment of Weston test instruments and of rheostats.

This course is designed to fit students to be practical electrical engineers, and special attention may be called to the fact that the laboratory is itself a practical plant; and the student is expected



THE ELECTRICAL ENGINEERING LABORATORY.

during the course to become familiar with the handling of boilers and engines as well as electrical machinery. The course is continued throughout the Junior and Senior years.

PHYSIOGRAPHY.

The first-year preparatory class study physiography, three exercises per week, during the fall term. The instruction consists of lectures upon general physiography and the relation of physiography to the sciences, and attention is given to meteorology. Ward's Meteorology is used as a text-book and is completed during the course. The Freshman class study physiography during the fall term, with two exercises per week of recitation and one of laboratory work, and during the winter with one exercise per week of laboratory work, including occasional excursions and field work.

A well-equipped physiographic laboratory, with globes, models, maps, charts, and other illustrative material, together with a special library, is open to the students. Especial attention is given to the scientific phases of the study—to the chemistry and geology of the soils, the influence of air and water on the same; and some reading and time are expended on the flora and fauna of the different countries. Tarr's Physical Geography is taken as a basis; and Dana's Coral Islands, Shaler's Aspects of the Earth, and Dana's Characteristics of Volcanoes are thoroughly studied during the term. Five hundred lantern slides, illustrating ethnological subjects, are projected and explained before the class. This course seems especially valuable to introduce the student to the scientific studies which are to follow.

General Mineralogy.—General mineralogy is given in the winter term of the Junior year, and consists of three exercises per week. The morphology of minerals and elements of crystallography are taught, together with the physical and chemical characteristics of minerals, especially of those rock-making minerals which compose our soils. Laboratory work consists of tests

illustrating the range of minerals and the application of chemical and blow-pipe analysis to determine the species.

AGRICULTURAL GEOLOGY.

The course in agricultural geology embraces structural, dynamical, and historical geology, particular attention being paid to the first-mentioned subdivision. A careful study is made of those minerals and rocks of importance in the formation of soils, of the agencies by which their decomposition is effected, and of the compounds which result. In this connection the instruction is designed to familiarize the student with the desirable mineral and physical features of soils, with those compounds the presence of which is undesirable or which may give rise to a greater or less degree of soil sterility, and with the means by which such conditions may be avoided or overcome. A proportionate amount of time is devoted to the history of those natural deposits of particular interest to agriculturists; such as nitrate of soda, the German potash salts, and phosphates of various kinds.

BOTANY.

The required work in botany for students in the agricultural, biological, and chemical courses begins in the winter term of the Freshman year with a course called the biology of plants, which continues three terms. The object of this course is to give the student a knowledge of plant life, by the study of the plants themselves in the laboratory and in the field. Attention is given to representatives of the vegetable kingdom from the lowest to the highest. Some time is given to the determination of species, but the chief work of the course is the study of the structure of the plant, its activities, and its relation to its environment. In short, the course is adapted to the needs of the general student who desires a knowledge of the principles of biology as illustrated by our common plants, and also furnishes a good foundation to the

THE BOTANICAL LABORATORY.

udent who is to follow more advanced work in botany, agriculture, horticulture, or medicine.

Each student is supplied with a compound microscope, a dissecting microscope, re-agents, and small instruments. The laboratory is provided with apparatus for simple physiological experiments, a microtome, paraffin bath, charts, thirty Brendel models, Briosi and Cavara's Parasitic Fungi of cultivated plants, Ellis's Fungi Columbiani, Seymour and Earle's Economic Fungi, and a collection of native plants. A good working library and several American and foreign periodicals are an important part of the equipment of the laboratory. So far as possible elective courses are given to suit the needs of students applying for them.

It is believed that excellent advantages are offered to those who wish to elect work in the parasitic fungi of seed-plants. The laboratory is provided with a supply of dry and alcoholic material, and collecting fields for fresh material are near at hand.

ZOÖLOGY.

The courses are open to students who have done satisfactory work in the biology of plants, or an equivalent, and are designed to meet needs of three sorts:

(A) Of students who will manage farms. To agricultural students are recommended courses in animal biology; zoölogy of the farm animals; journals; the principles and practice of aquiculture; entomology; comparative animal physiology; and the spring fauna of Kingston,—as described under zoölogy in the courses of instruction.

(B) Of students who wish to prepare themselves for careers in medicine, veterinary, and sanitary science. Such students are recommended to take the biological course.

(C) Of students who wish merely a general knowledge of zoölogical science sufficient to comprehend and to profit by the important current discussions bearing upon man's relations to his environment. To such is recommended the course in biology of

animals, followed, if desired, by entomology and the spring fauna of Kingston.

Special attention is called to two features: (1) The strength of the course in zoölogy as applied directly to general agriculture, and as furnishing an adequate basis for understanding our domesticated animals. (2) The course adapted for preliminary training for students who wish to become, after graduation, science teachers in the public schools, or to enter schools of human or veterinary medicine and surgery.

In pure and applied zoölogy, proximity to the sea-coast renders possible the study under natural conditions, as well as in aquaria, of the habits and development of many marine animals. The experiment station's marine laboratory, under the direction of the professor of zoölogy, is open to students who show capacity for effective work. It is located on the shores of the town, near Point Judith, and offers excellent opportunities for original investigation and experimentation upon problems of marine biology.

Further opportunities for study are furnished by springs, streams, ponds (natural and artificial), and lakes, upon or immediately adjacent to the college grounds. These, added to the location of the college township—in the southeast corner of Rhode Island, its shores bounded by Narragansett bay, and by the Atlantic—render the institution an ideal locality for biological study.

The department is provided with Leuckart's charts; Zeigler's and other models, manikins elucidating the anatomy of man, horse, and fowl; preparations of skins and skeletons of typical vertebrated animals; including not only the domesticated animals but also such rare forms as the gorilla, chimpanzee, lemurs, phalangers, manatee, and sloth; birds and mammals peculiar to the Australian region; the lung-fishes (Dipnoi); the Surinam toad; the giant salamander (C. japonicus); preserved specimens and preparations of the most important invertebrated forms; including Nautilus in the shell, Argonauta; apparatus for class demonstration of macroscopic and microscopic preparations. The department library includes the best literature on the subject; all of the

DAIRY BARN.

current zoölogical journals are available, either at the experiment station library, or by special arrangements. Particular attention is given to the collection illustrating the zoölogy of Rhode Island.

PSYCHOLOGY.

An elective course in psychology is offered during the winter and spring terms, to Juniors and Seniors. James's Briefer Course is used. Lectures and recitations are supplemented by reading and simple experiments.

AGRICULTURE.

In connection with the new course in agriculture, it may be said that the foundation instruction is largely given in the study of chemistry, botany, physics, geology, anatomy, physiology, zoölogy, and economics.

Following upon this fundamental knowledge, it is the aim in the agricultural course to teach the student the practical application of the scientific principles underlying technical agriculture. This is sought to be accomplished by means of lectures and recitations and by the use of text-books and reference books as far as available. The chief desire is to supplement, enforce, and fix this instruction by what may be termed laboratory work in agriculture: that is, by actual educational training in the different branches of farming. The object of the agricultural course is to assist in preparing the young man to become a successful farmer and a useful citizen. The course also aims to fit the student to fill remunerative positions as managers of farms and estates.

Preliminary to the teaching of agriculture a course is taken in the winter term of the Freshman year in agricultural mechanics, including the use of tools, bench work, and carpentering. Commencing in the spring term of the Freshman year, an introduction is given, in the form of lectures dealing with the origin and necessity of agriculture, its relation to other occupations, the

preparation for farming, and the relations of air, water, and sunshine, and of plant and animal life, to agriculture.

In the Sophomore year a study is made of farm soils, their characteristics, classification, and adaptions, their faults and means of improvement, clearing land and preparing for crops, irrigation and land drainage, with practice in planning and constructing systems of under-draining on the college farm. In the winter term instruction is supplied in the construction, use, and care of farm implements, machines, and vehicles; and in the arrangement, construction, and maintenance of farm buildings, fences, roads, and bridges. In the spring term fertilization is dealt with, and the instruction is re-inforced by object lessons offered by the fertilization experiments of the experiment station department and by the manuring for the farm crops.

In the first term of the Junior year, field crops are considered. During this year horticulture is chiefly taught. (See horticulture.)

In the Senior year opportunity is provided to study live stock husbandry, including the breeds, breeding, care and management of farm animals; rational feeding of live stock; dairy husbandry; poultry culture; farm management and accounts.

Further elective subjects are available to advanced students by special arrangement, including the history and economics of agriculture, agricultural and horticultural literature, farm law, apiculture, agricultural debate, and agricultural experimentation.

During the course in agriculture occasional inspection excursions will be made by the classes to learn what practical, successful specialists in the various branches of modern farming are doing.

Plans for short courses in agriculture and horticulture have been made. These courses would instruct special students in the principles and details underlying dairying, gardening, and general farming. The aim in the special courses is to provide the instruction needed to enable the student promptly to engage in a particular branch of farming, or to take charge of such work as superintendent. For placing these courses in full operation the college

FILLING THE SILO.

awaits the providing by the State of additional suitable buildings and equipment, which will greatly re-inforce the means of instruction in the regular agricultural course.

For the past two years a short course of instruction in poultry culture has been held during the winter term, commencing in January and continuing six weeks. The college has a strong force of regular teachers in the sciences and arts upon which poultry culture is based, and a large number of expert poultry specialists assist as instructors.

In this special course of study the main purpose is to teach the fundamental knowledge which underlies practical poultry keeping. Instruction is given in chemistry, zoölogy, anatomy, and physiology sufficient for the foundation of the course. Embryology is taught in the biological laboratory, where also the nature and habits of poultry parasites are studied. Carpentering and the construction of poultry houses and fences are taught in the carpenter shop. The course of study includes the following topics: poultry plants, location, planning, and establishment; drainage of the land; buildings, planning and drawing of plans, making specifications and estimates, location and arrangement, construction, heating, ventilation, and furnishing; fowls, their origin, kinds, breeds, and types; principles of breeding, mating, special breeding of water-fowl, turkeys, pigeons, etc.; incubation and rearing, both natural and artificial; foods, feeding, care, and management; production of eggs and flesh, caponizing, fattening, killing, dressing, and marketing; diseases, business methods and management, scoring, accounts, poultry photography, etc. The Saturdays are devoted chiefly to inspection excursions to different poultry farms in New England. Special public lectures are occasionally given. Opportunity is further offered to a limited number of students to supplement this special course of study by a year's practical training in the college poultry plant.

No entrance examination is required. Oral or written examinations may be given during and at the close of the course. Certificates will be awarded according to merit.

HORTICULTURE.

Work in horticulture is designed for students from all courses. It is felt that some knowledge of the subject may very properly form a part of every well-rounded education.

In the introductory course the aim will be to discuss principles of general importance to all who have to deal with orchard or garden crops. The courses in pomology and vegetable gardening are designed to give practical instruction in the growing of fruits and vegetables.

Landscape gardening is especially recommended to those who seek to appreciate the beautiful in nature or in art. Its aim is to apply the principles of beauty, as evinced in the work of nature, to the art of embellishing grounds.

Forestry touches problems of import to every citizen interested in the public welfare. Owing to the intimate relation between forests and waterflow, the subject is often of more vital importance to the manufacturer than to the farmer.

The subject of plant-breeding will appeal chiefly to those interested in the broader problems of biological development and relationship. A careful study of the amelioration and development of plants under culture throws light upon many of the general problems of evolution which are of interest to all thinking students.

The courses in reading and original investigation are designed chiefly for students who wish to make a specialty of horticulture.

LANGUAGES.

The subjects grouped under this head are English, German, French, Spanish, and Latin.

English—comprising composition, rhetoric, and literature—may be studied throughout the course. It is required during the preparatory years and the first three years of the collegiate department. The preparatory students review English grammar,

and study the works prescribed for entrance to the New England colleges. The theory and practice of rhetoric are taught throughout the Freshman year, and the application of rhetorical principles is sought in exercises and themes. The Sophomores make a critical study of certain prose masterpieces and write essays and various short papers. The required work of the Juniors consists of a course in English history and a study of the leading poets from Chaucer to Tennyson. Collateral reading is supplied, and students are encouraged to special investigation along literary and historical lines. In the Senior year electives are offered in literature and themes.

In the courses in agriculture, mechanical engineering, electrical engineering, and chemistry, three years of foreign language study are required for graduation; one preparatory and two advanced. It is desirable that two of the three years be spent upon one language. In the biological course, four years of foreign language study are required for graduation; one preparatory, and three advanced. Of the three years, two must be given to German and one to French.

A three years' course in German has been arranged, which is begun in the Freshman year. As far as possible the language itself is made the medium of instruction; and the subject is studied in grammar work, dictation, conversation, and translation — from English into German and from German into English. The course is carefully graded. As soon as a small vocabulary is acquired, the student begins the reading of simple prose and poetry, passing gradually to more difficult texts.

French may also be studied three years. Six courses are offered. The instruction in this language is similar to that given in German. Grammar, conversation, dictation, translation, and composition are taught.

Beginning with the fall of 1900, a two years' course in Spanish is offered. The work will be elective, and is intended largely to meet the needs of those students who may wish to engage in business in Spanish-speaking countries. Special attention will

therefore be paid to conversation, reading, letter-writing, and commercial forms.

Latin is elective except in the preparatory department. The college offers a two years' course. Should a student wish to pursue the subject farther, he may do so at his own expense, by taking private lessons of the instructor. Much attention is paid to derivation of words, in order that such study may aid in comprehending the terminology of science.

HISTORY AND POLITICAL SCIENCE.

General history is required throughout the first year in the preparatory department. An elective in United States history is offered to Sophomores and Juniors. This extends through the year. English history is studied in connection with English literature during the Junior year, and is required of all candidates for a degree. In the Senior year a course in modern European history from the beginning of the French revolution is offered as an elective. This may also be taken by Juniors who have had the work in United States history. In all of these courses much use is made of the library.

Political science I, offered in the fall term, consists of a study of the origin, development, and present structure of our government—town, city, county, state, and national. Special attention is paid to municipal problems, and to the United States constitution. Extensive use of the library is necessary. The winter and spring terms are devoted to political economy, based upon Walker's Advanced Course. In the spring term special consideration is given to the application of the general principles to banking, finance, and other present day problems.

MATHEMATICS.

Three courses in mathematics are prescribed for all candidates for a degree; the subjects being higher algebra, plane trigonometry, and solid and spherical geometry. The work extends through-

out the Freshman year, and is of the utmost importance, both as a basis for further work in mathematics and science, and as a means for developing the power of logical reasoning and of exact and concise expression. It is the aim throughout the course to select such problems and applications as shall have direct bearing upon practical subjects.

Courses in analytical geometry and calculus are required of students in the mechanical and electrical engineering courses, in addition to the above, and a number of electives are open to students who propose to make a specialty of mathematics or of any of the sciences which depend largely upon it.

The course in analytical geometry includes the subject of loci and their equations, the analytical demonstration of many geometrical theorems, and the simpler properties of the conic sections. The work in calculus includes the differentiation of algebraic, trigonometric, anti-trigonometric, exponential, and logarithmic functions, successive differentiation, and the integration of simple functions, illustrated by applications to the rectification of plane curves, the areas of plane curves, and the surface and volume of solids of revolution. The fundamental formulas of mechanics are developed and illustrated. The more familiar devices for integration are studied, and a short time is devoted to the interesting subject of curve-tracing.

Students wishing to prepare for advanced work along the lines of mechanical or electrical engineering are especially advised to elect courses in advanced integral calculus, analytical mechanics, and differential equations; while those who desire an insight into the development of modern pure mathematics may elect work in projective geometry, modern analytical geometry, theory of equations, and theory of functions.

CIVIL ENGINEERING.

In civil engineering four courses are offered: plane surveying, land drainage, advanced surveying, and road construction. Plane

surveying is required of agricultural Sophomores and may be elected by chemical Sophomores during the fall term. Surveying is supplemented during this term by a course in land drainage, continuing one-half the term. In the spring term the work in plane surveying is continued by the agricultural Sophomores. It embraces work in land, topographical, and stadia surveying. In the spring term of the Junior year a course in road construction is offered as an elective to agricultural students.

MECHANICAL ENGINEERING.

The aim of this department is to give sound theoretical and thorough practical training to students who seek to prepare themselves for useful and responsible positions. No attempt is made to teach trades; but the course offered in shop-work will furnish such training as will ensure, other things being equal, marked success in mechanical pursuits subsequent to graduation. The regular four years' course deals with mechanical engineering as applicable to the industries carried on in New England, and particularly in Rhode Island. Special attention is given to the designs and the economical operation of shops and mills, and of manufacturing and industrial machinery. Thorough courses in mathematics, physics, chemistry, electricity, English, French, and German are made the basis of this work. The subjects of mechanism, metallurgy, heating and ventilation of buildings, engineering specifications, and laws of contracts are treated by lectures and text-books. The several laboratories are well equipped for working in wood and metals and for the testing of materials used in construction. Students in the course of mechanical engineering receive instruction in bench-work in wood, wood-turning, pattern-making, forging, machine-shop work, and mechanical drawing.

Students in the agricultural course receive instruction in wood-working and forging, and may elect other work with the advice and consent of the committee on studies. Women are given

LADD LABORATORY.

THE CARPENTER SHOP.

THE WOOD-WORKING MACHINERY.

the opportunity to elect wood-carving at any time during the four years' course. During the winter term of three months, the shops are open to receive persons who may wish to enter the college and take up special work of a trade nature in any of the above lines. In addition to this work, these students may take a limited amount of time for the study of any related subject.

The carpenter shop contains benches and tools sufficient to accommodate twenty-four students at one time. The course is designed to give skill and confidence in working the various kinds of wood, and also to impart a fair knowledge of the principles of building and construction. A series of practical lectures upon the art of estimating the cost of various constructions of wood is given to the agricultural students of the Sophomore year. The wood-turning room contains thirteen lathes, each with its complete set of gouges and turning tools. In the same room are benches for pattern-making, and also power machinery for working wood; such as circular saw, hand saw, jig saw, surface planer, buzz planer, mortising machine, dowel machine and others. All students take wood-turning, and during the period each has practice under the direct charge of the engineer in care of the shop, boiler, and engine. The engine is of thirty horse power. The work in pattern-making given to the students in the mechanical department consists of the making of selected pieces to illustrate the principles of shrinkage, drafts, finish, core-box making, built-up work, and the general requirements of pattern-making.

The forge shop will accommodate twelve students at one time. It contains twelve forges and anvils, a stock cutter, a bolt header, a post drill, and is well supplied with all the hammers, tongs, and other forge and anvil tools necessary for complete work. A regular course is followed here as in other lines; and for the students of the agricultural course the work is of such a nature as is found about a farm. The various operations of drawing, bending, upsetting, and welding are taught and applied in the making of such useful pieces as staples, hooks, chains, and iron work for farm tools. The students of the mechanical department follow a

similar course, but in a direction more suited to the machine shop. Bolts, nuts, machine forgings, chisels, and lathe tools are made, and afterward put to practical use. Only students in the mechanical and electrical engineering courses work in the machine shop.

The course here is designed to give a sure knowledge of and intelligent practice in the best modern methods of using the various tools; such as, lathes, planers, drills, milling-machines, and grinding-machines. A course of hand work at the bench is offered, and includes instruction in chipping, filing, scraping, and finishing. Students of former years have made an engine, dynamo, speed lathe, full set of arbors, set of nut arbors, and a variety of other tools.

In experimental engineering the students make tests of engines, boilers, pumps, steam gauges, injectors, and a hydraulic ram. The strength of materials is investigated theoretically in class under the head of mechanics of materials, and practically in the laboratory by conducting tests upon specimens of wood, iron, steel, brick, stone, cement, boiler-plate, etc. In hydraulics, water meters are calibrated, and measurements of water made by orifices and wiers. During the spring term of the Senior year the class in mechanical engineering holds semi-weekly conferences; reports are given upon articles in the industrial magazines and journals, and engineering subjects of general interest are discussed. The following are some of the topics considered: types of steam boilers, furnaces, boiler feeders, fuels, lubricants, gas and heat engines, preparation and use of wood, cutting tools for metals, pumping machinery.

Mechanical drawing is required for a period of three years. Students keep notebooks, in which freehand sketches are made from models; and these sketches are afterward worked up into finished drawings. The making of working drawings for some machine completes the course. Practice in tracing and blue printing is given to all students. The course in drawing is designed to aid in the corresponding courses of shop work and not to produce professional draughtsmen.

STUDENTS IN DRILL HALL.

FREEHAND DRAWING.—Freehand drawing is taught in the fall and spring terms; and is required in the fall term, Freshman year. The required work comprises the study of perspective and values from objects, still life, and simple casts. Memory sketches of the objects drawn are expected of each student, who is also required to leave at the college a specimen of his work. The library contains an excellent collection of art books. In addition to the art electives, comprising drawing from still life and the cast, painting in oil, pastel, and water color, and modeling, special work will be arranged for scientific and mechanical students. An hour's study of the history of art, by means of reading, lectures, and the use of photographs, with which the studio is well supplied, may be substituted for one hour of the three-hour art elective offered in the spring term, Sophomore year.

STENOGRAPHY AND TYPEWRITING.

Stenography and typewriting are offered as an elective to members of the preparatory school and college. A thorough knowledge of the common English branches is required of every one taking the course. The Chandler Practical Shorthand and either the touch or sight system of typewriting are taught. The shorthand work may be divided into two parts: first, the perfecting of the knowledge of the system; second, a graded course in dictation. In typewriting, the students are given a series of exercises consisting of words, sentences, phrases, business letters and forms, and other matter selected with reference to its variety and scope. Absolute accuracy is required from the first in both subjects, and particular attention is paid to spelling and punctuation.

PHYSICAL TRAINING.

Unless excused by a physician, the young women meet once a week for athletic sports, conducted by Miss Grace B. Hazlewood. All are urged to join one of the classes which are organized for gymnastic practice.

COURSES OF INSTRUCTION.

The following courses of instruction are offered in the different departments. All studies required of regular students lead to the degree of Bachelor of Science.

CHEMISTRY.

I. General Chemistry.—Lectures, recitations, and laboratory work. *Fall and Winter terms, Sophomore year;* lectures and recitations, *3 exercises per week;* laboratory work, *1 exercise of 2 hours per week. Required of all candidates for a degree.*

II. Qualitative Analysis.—*Winter term, Sophomore year; 2 exercises of 2 hours each per week. Spring term, Sophomore year; 3 exercises of 2 hours each per week. Required of all candidates for a degree.*

III. Inorganic Preparations.—*Spring term, Sophomore year; 3 exercises of 2 hours each per week. Required of students in the Chemical course.*

IV. Theoretical Chemistry.—Lectures and recitations. *Spring term, Sophomore year; 3 exercises per week. Required of students in the Chemical and Biological courses.*

V. Quantitative Analysis.—Gravimetric and Volumetric. *Throughout the Junior year. Fall term; 5 exercises of 2 hours each per week, required of students in the Chemical course; 3 exercises of 2 hours each per week, required of students in the Agricultural and Biological courses; 2 exercises of 2 hours each*

per week, required of students in Mechanical and Electrical Engineering courses. Winter term; 3 exercises of 2 hours each per week. Required of students in the Chemical and Biological courses. Spring term; 5 exercises of 2 hours each per week. Required of students in the Chemical course; elective, open to students in the Biological course.

VI. Organic Chemistry.—Lectures, recitations, and laboratory work. *Fall and winter terms, Junior year;* lectures and recitations, *3 exercises per week;* laboratory work, *1 exercise of 2 hours per week. Fall term, required of students in the Chemical, Agricultural, and Biological courses. Winter term, required of students in the Chemical and Biological courses.*

VII. Organic Preparations.—*Spring term, Junior year; 3 exercises of 2 hours each per week. Required of students in the Chemical course; elective, open to students in the Biological course.*

VIII. Sanitary Chemistry.—*Winter term, Junior year; 3 exercises of 2 hours each per week. Required of students in the Chemical course; elective, open to students in the Biological course.*

IX. Mineralogy and Blowpipe Analysis.—*Winter term, Junior year; 3 exercises of 2 hours each per week. Required of students in the Chemical course; elective, open to students in the Biological course.*

X. Gas Analysis.—*Spring term, Junior year; 1 exercise of 2 hours per week. Required of students in the Chemical course.*

XI. Assaying.—*Spring term, Junior year; 1 exercise of 2 hours per week. Required of students in the Chemical course.*

XII. Industrial Chemistry.—Lectures and recitations. *Spring term, Junior year, and Fall term, Senior year; 3 exercises per week. Required of students in the Chemical course.*

XIII. Organic Chemistry (Advanced course).—*Fall and winter terms, Senior year; 3 exercises per week. Required of students in the Chemical course; and elective, open to students in the Biological course.*

XIV. Theoretical Chemistry (Advanced course).—Lectures, recitations, and laboratory work. *Fall term, Senior year;* lectures and recitations, *4 exercises per week;* laboratory work, *2 exercises of 2 hours each per week. Required of students in the Chemical course; elective, open to students in the Biological course.*

XV. Physiological Chemistry.—*Fall and winter terms, Senior year; 3 exercises per week. Required of students in the Chemical course.*

XVI. Textile Coloring.—*Winter and Spring terms, Senior year; 3 exercises per week. Required of students in the Chemical course.*

XVII. Agricultural Chemistry.—*Winter and Spring terms, Junior year; 3 exercises per week. Fall term, Senior year; 3 exercises per week. Required of students in the Agricultural course. Winter and Spring terms, Senior year; 3 exercises per week, taken with the Juniors. Required of students in the Chemical course; and elective, open to students in the Biological course.*

XVIII. Electro-Chemistry.—*Winter term, Senior year; 3 exercises per week. Required of students in the Chemical course.*

XIX. Metallurgy.—Lectures and recitations. *Spring term, Senior year; 3 exercises per week. Required of students in the Chemical course.*

XX. Toxicology.—*Spring term, Senior year; 1 exercise of 2 hours per week. Required of students in the Chemical course.*

XXI. Thesis Work.—*Throughout the Senior year. Required of students in the Chemical course.*

PHYSICS.

I. General Course.—Study of mechanics, hydraulics, pneumatics, and heat, *Fall term;* electricity and magnetism, *Winter term;* sound and light, *Spring term, Freshman year;* recitations, *2 exercises per week;* laboratory work, *1 exercise per week. Required of all candidates for a degree.*

II. Advanced Physics.—*Throughout the year;* recitations, *2 exercises per week;* laboratory work, *2 exercises per week. Required of all Sophomores in the Electrical Engineering Course, 3 exercises per week; Fall and Spring terms. Required of students in Mechanical Engineering course; and elective, open to students in other courses who have completed Physics I or its equivalent.*

III. Elementary Photography.—A course of lectures and recitations upon the optics and chemistry of photography, together with practical photographic work. *Spring term;* lectures, *2 exercises per week;* laboratory work, *1 exercise per week. Elective; open to all students.*

IV. Advanced Photography.—A course of lectures on photomicrography, the making of lantern slides and bromide enlargements, and the manipulation of the optical lantern. *Spring term;* lectures, *1 exercise per week;* laboratory work, *2 exercises per week. Elective; open to students who have taken course I.*

V. Sanitary Engineering.—A course of lectures on plumbing, heating, and ventilation, accompanied by laboratory work, given in alternate years with refrigeration and cold storage. *Throughout the year.* Lectures, *3 exercises per week, Fall term; lectures 2 exercises and laboratory work 1 exercise, Winter and Spring terms.* Elective; open to students who have taken Physics I or its equivalent. Required of students in the Electrical Engineering course.

ELECTRICAL ENGINEERING.

I. Advanced Electrical Work.—A course of lectures and laboratory work upon electrical measurements, testing of instruments,

dynamos and motors. *Throughout the year:* lectures, *1 exercise per week;* laboratory work, *2 exercises per week. Required of students in the Electrical Engineering course; and elective, open to students who have taken course II.*

II. Applied Electricity.—A course of lectures, accompanied by laboratory work upon modern practical applications of electricity. *Throughout the year;* lectures, *1 exercise per week;* laboratory work, *2 exercises per week. Required of students in Electrical Engineering course; and elective, open to students who have taken course III.*

PHYSIOGRAPHY.

I. Ward's Meteorology is used as a text-book. *Fall term, first year Preparatory; 3 exercises per week.*

II. Tarr's Physical Geography, with required reading from reference books. Laboratory work and excursions. *Fall term, Freshman year; 3 exercises per week: Winter term, Freshman year; 1 exercise per week. Required of all candidates for a degree.*

III. Mineralogy. See Chemistry, IX.

GEOLOGY.

Agricultural Geology.—Lectures and recitations. *Winter term, Senior year; 2 exercises per week. Required of Agricultural students, elective for Mechanical students.*

BOTANY.

I. Biology of Plants.—The general principles of biology are illustrated by our common plants. Laboratory, reading, and lectures. *Winter and Spring terms, Freshman year, and Fall term, Sophomore year; 3 exercises of two hours each per week. Required of students in the Agricultural, Biological, and Chemical courses.*

II. Fungi.—A study of fungi with special reference to para-

sitic forms of economic importance. Laboratory, reading and lectures. *Elective; open to students who have taken course I. Hours arranged with instructor.*

III. Histology.—Laboratory, reading and lectures. The laboratory work includes methods of imbedding, sectioning, staining, and mounting. *Elective; open to students who have taken course I. Hours arranged with instructor.*

IV. A study of the Spring Flora of Kingston, with practice in the identification of species. Given with course V in Zoölogy. The time is equally divided between the fauna and the flora. Field and laboratory, *Spring term; 3 exercises per week. Elective; open to students who have taken course I.*

By consulting the instructor other arrangements may sometimes be made for those desiring to elect work in botany.

ZOÖLOGY.

I. Biology of Animals.—Instruction in animal biology embraces a careful treatment through the laboratory, lecture and text-book, of the general anatomical, physiological, and developmental phenomena of animal life; the conditions and the causes of the broad manifestations of life, in the cell, in the individual, and in the race. The types studied are: Amœba, Paramœcium, Vorticella, Hydra, earthworm, fish, frog, cat, and man. Among the questions dealt with are the meaning of such terms as protoplasm, nutrition, growth, reproduction, life, death, the physiological division of labor, heredity, the views held by the different schools of evolutionists, the variation of species, effect of environment, natural selection, parasitism, and geographical distribution. In brief, it is a course adapted for the general student who wishes a knowledge sufficient to comprehend and to profit by the important current discussions bearing upon man's relations to his environment; at the same time, it gives a broad foundation for one who plans to enter a career in biological science, either as a teacher, investiga-

tor, or medical practitioner. *Winter and Spring terms, Sophomore year; 3 exercises per week. Required of Agricultural, Chemical, and Biological students.*

II. Zoölogy of the Farm Animals.—A study of the anatomy and physiology, comparative anatomy, embryology and phylogeny of the horse, cow, sheep, pig, and fowl. (Including reference to parasites and diseases.) *Fall and Winter terms, Junior year; 3 exercises per week. Required of Agricultural and Biological students.*

III. Comparative Anatomy of Invertebrated Animals, including the principles and practices of aquiculture. *Spring term, Junior year; 3 hours per week. Open to those who have passed in course I, and required of students in Biological course.*

IV. Journals.—Articles on biological subjects in current French and German scientific journals. *Throughout the Senior year; 2 hours per week. Required of students in Biological course.*

V. Spring Fauna and Flora of Kingston. *Spring term, Sophomore or Junior year; 3 exercises per week. Elective.*

VI. Normal Animal Histology. *Fall and Winter terms, Junior year; 3 exercises per week. Elective.*

VII. Entomology.—*Spring term, Junior year; 3 exercises per week. Elective.*

VIII. Animal Biological Problems.—Principles and practice of experimentation. *Spring term, Junior year; 3 exercises per week. Elective.*

IX. Comparative Physiology and Physiological Chemistry.—*Fall and winter terms, Senior year; 3 exercises per week. Elective.*

X. Comparative Physiology.—*Spring term, Senior year; 3 exercises per week. Elective; open only to those who have satisfactorily completed course IX.*

XI. Economic Entomology.—*Spring term, Senior year; 3 exercises per week. Elective.*

PSYCHOLOGY.

Elementary Course.—Lectures, recitations, simple laboratory experiments. *Winter and Spring terms; 3 exercises per week. Elective for Juniors and Seniors.*

AGRICULTURE.

I. Introduction.—Definition of terms; origin and necessity of agriculture; relations of agriculture to other industries; agriculture as an occupation; education for agriculture; the atmosphere and sunshine in relation to agriculture; plant and animal life in agriculture. *Spring term, Freshman year; 2 exercises per week. Required of Agricultural students.*

II. Soils.—*The origin, formation, and deposition of soils are studied under physiography; the composition, mechanical and chemical analysis under agricultural chemistry; the physical properties and relations under soil-physics.* Agricultural Soils.—Definition; function; variation; classification; adaptation; location; examination; faults; improvement and preparation; clearing land; grading; mixing soils; paring and burning; reclaiming land; irrigation. *Fall term, Sophomore year; two exercises per week for one-half term. Required of Agricultural students.*

III. Land Drainage (Waring).—Sources of water; necessity of drainage; kinds of drains; action of drains; planning system of drainage; drain tiles; construction and care of drains; cost and value of drains; sanitary effects of drainage. *Fall term, Sophomore year; 2 exercises per week for one-half term. Required of Agricultural students.*

IV. Agricultural Apparatus and Constructions.—Farm tools; implements; machines and vehicles; farm buildings; fences; roads and bridges—arrangement, construction, care, and mainte-

nance. *Winter term, Sophomore year; 3 exercises per week. Required of Agricultural students.*

V. Farm Fertilization.—Introduction; classification of manures, atmospheric, mineral, and organic; manurial sources of potash, lime, magnesia, soda, iron, phosphates and nitrogen salts; stable manure, composition and management; animal manures; liquid manure; farm sewage; guanos; fish fertilizers; animal refuse; peat; green manuring; sea-weeds; vegetable refuse and by-products; composts; divisors for manures; application and action of manures; valuation of manures. *Spring term, Sophomore year; 2 exercises per week. Required of Agricultural students.*

VI. Field crops.—Balancing of farm; rotation of crops; grass-land; wood-land; tillage-land; preparation of land, planting, cultivating, harvesting, storing, and disposal of crops; special consideration of the hay crop, fodder crops, Indian corn, potatoes, root crops, field and garden vegetables; weeds. *Full term, Junior year; 2 exercises per week. Elective.*

VII. Breeds of Farm Animals (Curtis).—Origin, history, characteristics, and adaptability of the leading breeds of the horse, neat cattle, sheep, swine, and poultry; scoring; tracing pedigrees; breeders' associations. *Fall term, Senior year; 2 exercises per week. Elective.*

VIII. Breeding of Live Stock.—The principles of breeding; heredity; atavism; correlation; variation; fecundity; in-breeding; cross-breeding; relative influence of parents; sex; pedigree; form; selection; the breeding, care, and management of the horse, neat cattle, sheep, swine, and poultry. *Fall term, Senior year; 3 exercises per week. Elective.*

IX. History of Agriculture.—Agriculture in relation to civilization; fisher and hunter-folk; nomads; tillers of the soil; development of tillage; history of the plow; crop rotation; irrigation; fertilization; general and special farming; agricultural education;

agricultural experimentation; evolution of farming implements; the farm and the farmer to-day. *Fall term, Senior year; 2 exercises per week. Elective by special arrangement.*

X. Feeding of Farm Animals.—Principles of rational feeding; animal body, composition, processes of digestion, assimilation, and excrementation; feeding-stuffs, composition and digestibility; nutrients; feeding-standards; formulating rations; selection of feeding-stuffs; preparation of food; methods of feeding; utility of shelter; special feeding of horse, cow, sheep, swine, and poultry. *Winter term, Senior year; 3 exercises per week. Elective.*

XI. Dairy Husbandry.—Breeds and breeding of dairy cattle; barns and dairy buildings; milk production, composition; management, æration, pasteurization, sterilization, testing, transportation, and marketing; creaming; butter-making; cheese-making; milk-preservation, condensed milk, milk-sugar, etc., milk preparation for infants and invalids; dairy bacteriology. *Winter term, Senior year; 3 exercises per week. Elective.*

XII. Poultry Raising.—Domestic fowls—kinds, breeds, selection, and breeding; buildings—location and arrangement, construction and furnishing, ventilation, yards and parks; foods and feeding, care and management, production of eggs and flesh, fattening; dressing and marketing; incubation, natural and artificial; rearing; diseases and enemies; caponizing; records and accounts; special management of turkeys, geese, ducks, and pigeons. *Winter term, Senior year; 2 exercises per week. Elective.*

XIII. Agricultural Economics.—The mutual relations of agriculture and the body politic; the position of agriculture; independence of agriculture; State intervention; legislation; tariff; bounties; taxation; insurance; credit; rewards; census; moral and social aspects of agriculture; division and distribution of farms; size of farms; extensive and intensive farming; ownership of land; inheritance; nationalization of land; government lands; colonization; agricultural laborers, machinery, experimentation;

education; association; coöperation; press; agricultural improvement; reclamation and irrigation of land; diversification of products. *Winter term, Senior year; 2 exercises per week. Elective by special arrangement for students who have taken Agriculture IX.*

XIV. Agricultural Literature.—An opportunity to read and study in any special line of agriculture for which the student is prepared. Examination and consideration of the reports and bulletins of the agricultural experiment stations. *Winter term, Senior year; 2 exercises per week. Elective by special arrangement.*

XV. Farm Management.—Introduction and definitions; farming requisites; farm production and market relations; capital—permanent, floating, and perishable—distribution in land, buildings, apparatus, live stock, and supplies; labor and power; machinery; kind of farming; size of farm; system of farming; ownership or rental of farm; maintenance and management; returns and results; inventory, and balancing of accounts. *Spring term, Senior year; 5 exercises per week. Elective.*

XVI. Farm Accounts and Records.—The principles and methods of book-keeping in their application to the keeping of farm accounts; diary; note-book; calendar; records and accounts of special departments, crops, fields, and animals; calculations; estimates, and valuations; inventories. *Spring term, Senior year; 1 exercise per week. Elective.*

XVII. Farm Law.—The legal rights and liabilities of farmers; purchase and sale of farm, forms of deeds; rental of farm, terms of lease; boundaries and fences; overhanging trees; water rights and drainage; ways over the farm; rights in the highway; roadsides; live stock; dogs; game; trespass; theft; fires; insurance; employing laborers; liability of employer and employed; contracts; mortgages; notes; taxes; exchange, sale, and purchase; contagious diseases of live stock and crops. *Spring term, Senior year; 1 exercise per week. Elective by special arrangement.*

XVIII. Apiculture.—A study of the habits, care, breeding,

and management of the honey-bee, with practical work in the apiary. *Spring term, Senior year; 1 exercise per week. Elective by special arrangement.*

XIX. Agricultural Debate.—Discussion in the form of regular parliamentary debates upon leading agricultural questions. *Spring term, Senior year; 1 exercise per week. Elective.*

XX. Agricultural Experimentation.—A study of the objects, principles, and methods of agricultural experimentation. Opportunity will be given for practical participation in the work of the experiment station to those students who arrange to continue this work through the experimental season. *Spring term, Senior year; 2 exercises per week. Elective by special arrangement.*

HORTICULTURE.

I. Principles of Horticulture.—A discussion of fundamental principles underlying horticultural operations in orchard, garden, and greenhouse. *Fall term, Junior year; 2 recitations and 1 laboratory period per week. Required of Agricultural students.*

II. Pomology.—Lectures and supplementary reading. Designed to give practical instruction in fruit growing. *Winter term; 3 exercises per week. Elective.*

III. Vegetable Gardening.—Methods of growing garden vegetables in the open ground and under glass. *Winter term; 3 exercises per week. Elective.*

IV. Landscape Gardening.—The principles underlying landscape gardening as a fine art, with discussion of the ornamentation of home-grounds, school-grounds, cemeteries, parks, highways, and other public grounds. Lectures and supplementary reading. *Fall term; 3 exercises per week. Elective.*

V. Forestry.—General importance of forests, their influence on climate and water supply, methods of regeneration, and systems

of forest management. Lectures and supplementary reading. *Spring term; 3 exercises per week. Elective.*

VI. Plant Breeding.—A discussion of the development of plants under culture, with especial reference to problems of heredity, environment, variation, selection, and evolution. Lectures and supplementary reading. Open to students who have had course I in botany. *Fall term; 2 exercises per week.** *Elective.*

VII. Horticultural Literature.—A seminary course designed to give familiarity with horticultural writings, ancient and modern. *By arrangement.** *Elective.*

VIII. Original Investigation.—For advanced students only. *By arrangement. Elective.*

ENGLISH.

I. Elementary Course.—Grammar; composition; study of college preparatory English. *Fall term, first year; 6 exercises per week; Winter and Spring terms, 5 exercises per week; throughout the second year, 3 exercises per week. Required of all students in the Preparatory department.*

II. Rhetoric.—Text-book study and practical application of rhetorical principles in themes and exercises. *Throughout the Freshman year; 2 exercises per week. Required of all candidates for a degree.*

III. Critical study of certain prose masterpieces, with essays and various short papers. *Throughout the Sophomore year; 2 exercises per week. Required of all candidates for a degree.*

IV. General English literature.—Topical study. Essays and collateral reading required. *Throughout the Junior year; 2 exercises per week. Required of all candidates for a degree.*

V. Special English Literature.—Study of special periods and

* Courses VI and VII may be combined to make a three-hour course.

authors. *Throughout the year; 3 exercises per week. Elective; open to students who have taken courses I–IV or their equivalent.*

VI. Special Work in Themes. *Throughout the year. Elective; open to students who have taken courses I–IV or their equivalent.*

GERMAN.

I. Elementary Course. — Grammar, dictation, conversation, reading of easy prose and poetry. *Fall and Winter term, Freshman year; 5 exercises per week: Spring term; 3 exercises per week. Required of all candidates for a degree who do not offer French.*

II. Reading of intermediate texts, composition, conversation. *Fall term, Sophomore year; 3 exercises per week. Open to students who have taken course I or its equivalent, and required of all candidates for a degree who do not offer French.*

III. German Classics.— *Winter and Spring terms; 3 exercises per week. Open to students who have taken courses I and II or their equivalent, and required of all candidates for a degree who do not offer French.*

IV. Goethe's Meisterwerke (Bernhardt).—*Fall term; 3 exercises per week. Elective; open to those who have taken courses I-III or their equivalent.*

V. Study of Schiller or Heine.— *Winter term; 3 exercises per week. Elective; open to those who have taken courses I-III or their equivalent.*

VI. Study of Freytag.—*Spring term; 3 exercises per week. Elective; open to those who have taken courses I-III or their equivalent.*

VII. Scientific German.—Special work assigned by different professors. *Elective; open to those who have taken courses I-III or their equivalent.*

FRENCH.

I. Elementary Course. — Grammar, dictation, conversation, reading of easy prose and poetry. *Fall and Winter terms, Freshman year; 5 exercises per week: Spring term, 3 exercises per week. Required of all Freshmen not taking German or Latin and not offering French for admission.*

II. Reading of intermediate texts, composition, conversation.—*Throughout the Sophomore year; 3 exercises per week. Required of all candidates for a degree who do not offer German.*

III. French Classics.—*Throughout the year; 3 exercises per week. Elective; open to students who have taken courses I and II.*

IV. Lyrics of the Nineteenth Century.—*Fall term; 3 exercises per week. Elective; open to those who have taken courses I and II or their equivalent.*

V. Study of Victor Hugo.— *Winter term; 3 exercises per week. Elective; open to those who have taken courses I and II or their equivalent.*

VI. Scientific French.—Special work assigned by different professors. *Elective; open to those who have taken courses I and II or their equivalent.*

SPANISH.

I. Elementary Course.—Grammar, dictation, conversation, letter-writing, commercial forms, reading of easy prose and poetry. *Throughout the year; 3 exercises per week. Elective.*

II. Advanced Course.—Continuation of course I. Reading of more difficult texts. *Throughout the year; 3 exercises per week. Elective.*

LATIN.

I. Elementary Course.—Grammar, composition, easy reading *Throughout the year; 5 exercises per week. Required of students in the Preparatory department.*

II. Selections from various Latin authors, or Cæsar.—*Throughout the year; 3 exercises per week. Elective.*

HISTORY AND POLITICAL SCIENCE.

I. General History.—*Throughout the year; 3 exercises per week. Required of all students in the Preparatory department.*

II. Constitutional and Political History of the United States. Based on "Epochs of American History."—Lectures, recitations, readings, and reports. *Throughout the year; 3 exercises per week. Elective for Sophomores and Juniors.*

III. English History.—This subject forms a part of the required work in Junior English. (See English IV.)

IV. Modern European History from the Beginning of the French Revolution.—*Throughout the year; 3 exercises per week. Elective for Juniors and Seniors.*

V. Science of Government.—Town, city, country, state, and United States. Their origin, development, and practices. Critical analysis of the Constitution of the United States. Lectures, recitations, and reports. *Fall term; 3 exercises per week. Required of all candidates for a degree.*

VI. Political Economy.—General principles. Based on Walker's Advanced Course.—Lectures, recitations, discussions, readings, essays. Consideration of present day problems. *Winter and Spring terms, Senior year; 3 exercises per week. Required of all candidates for a degree.*

MATHEMATICS.

I. Arithmetic.—Mensuration, the metric system, cube root, square root, proportion, and general review. *Preparatory department; Fall term, first year; 5 exercises per week.*

II. Algebra (Hall and Knight).—The fundamental operations,

addition, subtraction, multiplication, division, of algebraic quantities; factoring and its applications; the solution of simple equations with one or more unknown quantities; involution; evolution the theory of exponents; the solution of radical and quadratic equations; arithmetical and geometrical progression; the binomial theorem. *Preparatory department; Winter and Spring terms, first year; 5 exercises per week; 4 exercises per week throughout the second year.*

III. Plane Geometry (Phillips and Fisher).—Rectilinear figures; the circle; measurements of angles; the theory of proportion; similar figures; regular polygons; areas of polygons; the measurement of the circle; original demonstrations. *Preparatory department; second year; 3 exercises per week.*

IV. College Algebra (Taylor).—The theory of limits; differentiation; development of functions in series; permutations and combinations; determinants. *Fall term, Freshman year; 4 exercises per week. Required of all candidates for a degree.*

V. Plane Trigonometry (Wentworth).—The derivation of the fundamental formulas; logarithms; the solution of right and oblique triangles; practical problems. *Winter term, Freshman year; 3 exercises per week. Required of all candidates for a degree.*

VI. Solid Geometry (Phillips and Fisher).—Lines and planes in space; diedral angles; polyhedral angles; polyhedrons; the cylinder, cone, and sphere; measurement of the cylinder, cone and sphere; numerical examples and original demonstrations *Spring term, Freshman year; 3 exercises per week. Required of all candidates for a degree.*

VII. Analytical Geometry (Loney).—Coördinate systems; the point; the line; relation between different coördinate systems the equation of the first degree, the straight line; the equation of the second degree, the conic sections; higher plane curves *Throughout the Sophomore year; 3 exercises per week. Required*

of students in the Mechanical and Electrical Engineering courses. Elective for other students.

VIII. Calculus (Osborne).—The differentiation of algebraic, trigonometric, logarithmic, exponential, and anti-trigonometric functions. Integration of fundamental forms; definite integrals; applications to geometry and mechanics; successive differentiation; successive integration with applications; evaluation of indeterminate forms; the development of functions in series; maxima and minima; change of the independent variable; integration of rational fractions; integration by rationalization; integration by parts and by series; curve tracing. *Throughout the Junior year; 3 exercises per week. Required of students in the Mechanical and Electrical Engineering courses. Elective for other students.*

IX. Differential Equations.—*First half the Senior year; 3 exercises per week. Required of students in the Electrical Engineering course. Elective for other students who have completed course VII.*

X. Analytical Mechanics.—*Second half the Senior year; 3 exercises per week. Required of students in the Electrical Engineering course. Elective for other students who have completed course VIII.*

XI. Courses in synthetic geometry, projective geometry, theory of equations, modern analytical geometry, theory of functions, may be arranged for by consultation with the head of the department.

CIVIL ENGINEERING.

I. Plane Surveying (Raymond).—Elementary course, field work, recitation, and plotting. Use of compass, transit, and levels; adjustment of instruments. *Fall term, Sophomore year; 1 exercise per week of classroom work, 2 exercises of three hours each of field work per week. Required of Agricultural students. Elective, for Chemical students.*

II. Land drainage. (See Agriculture III.) *Required of Agricultural students.*

III. Civil Engineering.—Land, topographic, and stadia, surveying; the study of the use of engineer's tables. *Spring term, Sophomore year; 4 exercises per week. Required of Agricultural students.*

IV. Road construction and Leveling (Spalding).—Location and construction of roads; mechanical structures; earth, gravel, broken stone, paved and macadam roads. *Fall term; Junior year; 3 exercises of text-book work and 1 exercise of three hours of field work per week. Elective; open to Agricultural students.*

MECHANICS.

I. Mechanical Drawing.—Elementary principles, use of tools, inking in, geometrical drawing. *Winter and Spring terms, Freshmen year; 2 periods of two hours each per week. Required of all candidates for a degree in Mechanical and Electrical Engineering.*

II. Mechanical Drawing.—Screw threads, bolts and nuts, shade lines, line shading. *Winter term, Sophomore year; 3 periods of two hours each per week. Required for a degree in Mechanical and Electrical Engineering.*

III. Mechanical Drawing.—Descriptive geometry. *Spring term, Sophomore year; 3 periods of two hours each per week. Required for degree in Mechanical and Electrical Engineering.*

IV. Mechanical Drawing.—Machine details and parts, tracing, blue printing. *Fall term, Junior year; 3 periods of two hours each per week. Required for degree in Mechanical and Electrical Engineering.*

V. Mechanical Drawing.—Elements of machine design. *Winter term, Junior year; 3 periods of two hours each per week. Required for a degree in Mechanical Engineering.*

VI. Mechanical Drawing.—Practical machine design. *Fall term, Senior year; 2 periods of 2 hours each per week. Required for a degree in Mechanical Engineering.*

VII. Mechanical Drawing.—Elements of topographical drawing as introductory to land surveying. *Winter term, Sophomore year; 1 period of 2 hours per week. Required for a degree in Agriculture.*

VIII. Wood-working.—Use of tools, bench work, and carpentering. *Winter term, Freshman year; 2 exercises of 3 hours each per week. Required for a degree in Mechanical and Electrical Engineering and Agriculture.*

IX. Wood-working. — Wood-turning and pattern-making. *Spring term, Freshman year; 3 exercises of 3 hours each per week. Required for a degree in Mechanical and Electrical Engineering.*

X. Shopwork.—Foundry practice, principles of moulding and casting. *Fall term, Sophomore year; 2 exercises of 2 hours each per week. Required for a degree in Mechanical Engineering.*

XI. Shopwork. — Forging, drawing, bending, welding, and tool dressing. *Fall term, Junior year; 2 exercises of 3 hours each per week. Required for a degree in Mechanical Engineering.*

XII. Shopwork.—Forging. Short course. *Spring term, Freshman year; 1 exercise of 3 hours per week. Required for a degree in Agriculture.*

XIII. Machine-shop Practice. — *Winter and Spring terms, Junior year; 2 exercises of 3 hours each per week. Required for a degree in Mechanical and Electrical Engineering.*

XIV. Wood-carving.—Care and use of tools, geometrical motives, diaper patterns, incised carving, flat and curved surface carving, historic ornament, low relief, and high relief. *Elective in the Preparatory department and the College; 1 exercise of 3 hours per week.*

XV. Steam Boilers.—Types, construction, strength, uses, and management. *Fall term, Junior year; 2 exercises per week. Required for a degree in Mechanical and Electrical Engineering.*

XVI. Thermodynamics.—As directly applied to the steam engine. Simple and compound engines. *Winter term, Junior year; 4 exercises per week. Required for a degree in Mechanical Engineering.*

XVII. Steam Engineering.—Valve gears, regulators, condensers, power plants, tests. *Spring term, Junior year; 3 exercises per week. Required for a degree in Mechanical and Electrical Engineering.*

XVIII. Strength of Materials.—Wood, iron, steel, alloys, brick, stone, and cements. *Spring term, Junior year; 3 exercises and 1 laboratory exercise of 2 hours each week. Required for a degree in Mechanical Engineering.*

XIX. Theoretical and Applied Mechanics.—Bodies at rest and in motion, friction of rest and motion, energy, work, and power. *Fall term, Senior year; 4 exercises per week. Required for a degree in Mechanical Engineering.*

XX. Graphic Statics of Structures and Machines.—*Winter term, Senior year; 4 exercises per week. Required for a degree in Mechanical Engineering.*

XXI. Hydraulics.—Flow of water through pipes, orifices, and sewers. Measurement of flow of rivers and streams. Water power and water supply. *Spring term, Senior year; 4 exercises per week. Required for a degree in Mechanical and Electrical Engineering.*

XXII. Engineering Laboratory.—Physical tests of materials used in industries, and in construction. Tests of machines and apparatus. *Throughout the Senior year; 2 lectures and 1 laboratory exercise per week. Required for a degree in Mechanical Engineering.*

THE STUDIO,

XXIII. Mill Construction.—Lectures upon the structural development and design of shops and mills. *Fall term, Senior year; 3 exercises per week. Required for a degree in Mechanical and Electrical Engineering.*

XXIV. Metallurgy.—Cast iron, wrought iron, steel, copper, tin, lead, zinc, and alloys. *Winter term, Senior year; 3 exercises per week. Required for a degree in Mechanical Engineering.*

XXV. Textile Machinery.—Lectures upon types of machinery and processes for the manufacture of cotton and woolen goods. *Spring term, Senior year; 3 exercises per week. Required for a degree in Mechanical Engineering.*

NOTE.—Students may elect studies in other courses, if fully prepared and time allows.

DRAWING AND MODELING.

I. Freehand Drawing.—Drawing in charcoal from objects. Memory sketches required. *Fall term, Freshman year; 1 exercise of 2 hours per week. Required of all candidates for a degree.*

II. Drawing in Charcoal from Still Life and the Cast.—*Spring term, Freshman year; 3 exercises of 2 hours per week. Elective; open to students in Chemical and Biological courses.*

III. Drawing in Charcoal from Still Life and the Cast.—*Fall term, Sophomore year; 3 exercises of 2 hours per week. Elective; open to students in the Biological course who have taken course I. Spring term, Sophomore year; open to students in Biological course.*

IV. Modeling.—*Fall term, Sophomore year; 3 exercises of 2 hours per week. Elective; open to students in Chemical and Biological courses.*

STENOGRAPHY.

I Elementary Course.—Instruction in principles; dictation. *Throughout the year; 4 exercises per week. Elective.*

II. Advanced Course.—Dictation, including the following: business letters, legal documents, terms used, deeds, wills, mortgages, contracts, declarations, etc.; hints useful in office work; general dictation. *Throughout the year; 3 periods per week. Elective.*

THE PREPARATORY DEPARTMENT

OF THE

Rhode Island College of Agriculture and Mechanic Arts.

Students in the Preparatory Department are placed in one of the following classes, according to their attainments.

The object of this course is to prepare students from the country schools for the college courses.

FALL TERM.

First Year Preparatory.		Second Year Preparatory.	
Advanced Arithmetic	5	Algebra	4
English	6	Geometry	3
General History	3	English	3
Physiography	2	Latin	5

WINTER TERM.

Algebra	5	Algebra	4
English	5	Geometry	3
General History	3	English	3
Physics	3	Latin	5

SPRING TERM.

Algebra	5	Algebra	4
English	5	Geometry	3
General History	3	English	3
Physics	3	Latin	5

Students able to take afternoon work may elect one of the following subjects: carpentering, freehand drawing, wood-carving, practical agriculture, stenography and typewriting.

Students desiring special work in Agriculture or Mechanics, who are not prepared to enter the regular courses leading to a degree, may combine with work in the preparatory department such courses in Agriculture and Mechanics as may fit their especial needs. The successful completion of such a special course will lead to a certificate covering the work completed.

THE COURSES OF STUDY LEADING TO A DEGREE.

FRESHMAN.

Fall Term.

Physiography II	3	English II	2
Physics I	3	German I	5
Mathematics IV	4	Freehand Drawing I	1

	Agriculture.	Mechanical Engineering.	Electrical Engineering.	Chemistry.	*Biology.
Winter Term.	Mathematics V 3	Mathematics V 3	Mathematics V 3	Mathematics V 3	Mathematics V 3
	Physics I 3	Physics I 3	Physics I 3	Physics I 3	Physics I 3
	Physiography II 1	Physiography II 1	Physiography II 1	Physiography II 1	Physiography II 1
	English II 2	English II 2	English II 2	English II 2	English II 2
	German I 5	German I 5	German I 5	German I 5	German I 5
	Mechanics VIII 2	Mechanics VIII 2	Mechanics VIII 2	Botany I 3	Botany I 3
	Botany I 3	Mechanics I 2	Mechanics I 1	Military Drill.	Military Drill.
	Military Drill.	Military Drill.	Military Drill.		
Spring Term.	Mathematics VI 3	Mathematics VI 3	Mathematics VI 3	Mathematics VI 3	Mathematics VI 3
	Physics I 3	Physics I 3	Physics I 3	Physics I 3	Physics I 3
	English II 2	English II 2	English II 2	English II 2	English II 2
	German I 3	German I 3	German I 3	German I 3	German I 3
	Mechanics I 1	Mechanics I 2	Mechanics I 2	Botany I 3	Botany I 3
	Botany I 3	Mechanics IX 3	Mechanics IX 3	Military Drill.	Freehand Drawing II 3
	Agriculture I 2	Military Drill.	Military Drill.	ELECTIVES.	Military Drill.
	Military Drill.			(*One to be chosen.*)	
				Freehand Drawing II 3	
				Mechanics I 3	

*At some time during the course, besides the required biological subjects, the equivalent of three hours for thirty-six weeks must be elected from the department of Zoölogy or Botany.

History must be elected for three hours for thirty-six weeks in either the Sophomore or Junior year.

[redacted] Two of these years must be German, and one French.

SOPHOMORE.

	Agriculture.	Mechanical Engineering.	Electrical Engineering.	Chemistry.	Biology.
Fall Term.	Chemistry I. ..... 4 English III..... 2 German II..... 3 Botany I. ..... 3 Civil Engineering I..... 3 Agriculture II, III..... 2 Military Drill.	Chemistry I..... 4 English III..... 2 German II..... 3 Physics II..... 3 Mathematics VII ..... 3 Mechanics X..... 2 Military Drill.	Chemistry I..... 4 English III..... 2 German II..... 3 Physics II..... 4 Mathematics VII..... 3 Military Drill.	Chemistry I. ..... 4 English III..... 2 German II..... 3 Botany I..... 3 Military Drill. ELECTIVES. (*Each subject three times a week, two to be chosen.*) FIRST GROUP. (*Only one of this group may be taken.*) History II. French. German. SECOND GROUP. (*One of this group must be and two may be taken.*) Physics II, V. Civil Engineering I. Mathematics VII. Agriculture II, III. Freehand drawing III.	Chemistry I. ..... 4 English III..... 2 German II..... 3 Botany I..... 3 Military Drill. ELECTIVES. (*Each subject three times a week, two to be chosen.*) FIRST GROUP. (*Only one of this group may be taken.*) History II. French I, II. SECOND GROUP. (*One of this group must be and two may be chosen.*) Physics V. (*Given in alternate years.*) Physics II. Mathematics VII. Horticulture I, IV. Freehand Drawing III. Modeling IV.
Winter Term.	Chemistry I..... 4 Chemistry II..... 2 English III..... 2 German III ..... 3 Zoölogy I..... 3 Mechanics VII..... 1 Agriculture IV..... 3 Military Drill.	Chemistry I..... 4 Chemistry II..... 2 English III..... 2 German III..... 3 Mathematics VII..... 3 Mechanics II..... 3 Military Drill.	Chemistry I. ..... 4 Chemistry II..... 2 English III..... 2 German III..... 3 Physics II. ..... 4 Mathematics VII..... 3 Military Drill.	Chemistry I. ..... 4 Chemistry II..... 2 English III..... 2 German III..... 3 Zoölogy I..... 3 Military Drill. ELECTIVES. (*Each subject three times a week, one to be chosen.*) History II. French I, II. German. Physics II. Mathematics VII.	Chemistry I. ..... 4 Chemistry II..... 2 English III..... 2 German III..... 3 Zoölogy I..... 3 Military Drill. ELECTIVES. (*Each subject three times a week, one to be chosen.*) History II. French I, II. Botany. Physics II. Mathematics VII. Horticulture V.
Spring Term.	Chemistry II..... 3 English III..... 2 German III..... 3 Zoölogy I..... 3 Civil Engineering III..... 4 Agriculture V..... 2 Military Drill.	Chemistry II..... 3 English III..... 2 German III ..... 3 Physics II..... 3 Mathematics VII..... 3 Mechanics III. ..... 3 Military Drill.	Chemistry II..... 3 English III..... 2 German III..... 3 Physics II..... 4 Mathematics VII..... 3 Mechanics III. ..... 3 Military Drill.	Chemistry II..... 3 English III..... 2 German III..... 3 Zoölogy I..... 3 Chemistry III..... 3 Chemistry IV..... 3 Military Drill. ELECTIVES. (*Each subject three times a week, one to be chosen.*) History II. French I, II. Physics II, III. Mathematics VII. Agriculture V.	Chemistry II..... 3 English III..... 2 German III..... 3 Zoölogy I..... 3 Chemistry IV..... 3 Military Drill. ELECTIVES. (*Each subject three times a week, one to be chosen.*) History II. French I, II. Botany. Chemistry III. Physics II, III. Mathematics VII. Zoölogy V, or Botany IV. Freehand Drawing III. Horticulture V.

JUNIOR.

Fall Term.

Agriculture.	Mechanical Engineering.	Electrical Engineering.	Chemistry.	Biology.
Chemistry V ..... 3 English IV ..... 2 Zoölogy II ..... 3 Zoölogy VII ..... 3 Horticulture I ..... 4 Chemistry VI ..... 2 Military Drill.	Chemistry V ..... 2 English IV ..... 2 Mathematics VIII ..... 3 Electrical Engineering I. 3 Mechanics IV ..... 3 Mechanics XI ..... 2 Mechanics XV ..... 2 Military Drill.	Chemistry V ..... 2 English IV ..... 2 Mathematics VIII ..... 3 Electrical Engineering I. 3 Mechanics IV ..... 2 Mechanics XV ..... 2 Military Drill. ELECTIVES. (*Each subject three times a week, one to be chosen.*) Civil Engineering I. History II.	Chemistry V ..... 5 English IV ..... 2 Chemistry VI ..... 4 Military Drill. ELECTIVES. (*Each subject three times a week, two to be chosen.*) FIRST GROUP. (*Only one of this group may be taken.*) History II, IV. French. German. SECOND GROUP. (*One of this group must be and two may be taken.*) Zoölogy II. Botany. Physics II. Mathematics VIII. Horticulture I.	Chemistry V ..... 3 English IV ..... 2 Chemistry VI ..... 4 Zoölogy II ..... 3 Military Drill. ELECTIVES. (*Each subject three times a week, two to be chosen.*) FIRST GROUP. (*Only one of this group may be taken.*) History II, IV. French. German. SECOND GROUP. (*One of this group must be and two may be taken.*) Botany. Horticulture VI, IV. Zoölogy VI. Mathematics VIII. Physics V.

Winter Term.

Agriculture.	Mechanical Engineering.	Electrical Engineering.	Chemistry.	Biology.
English IV ..... 2 Chemistry XVII ..... 3 Military Drill. ..... 12 Elective	English IV ..... 2 Mathematics VIII ..... 3 Electrical Engineering I. 3 Mechanics V ..... 3 Mechanics XIII ..... 2 Mechanics XVI ..... 4 Military Drill.	English IV ..... 2 Mathematics VIII ..... 3 Electrical Engineering I. 3 Mechanics XIII ..... 3 Mechanics V ..... 2 Military Drill. 4 ELECTIVES. (*Each subject three times a week, one to be chosen.*) Mathematics XI. (Synthetic Geometry.) History II.	English IV ..... 2 Chemistry VI ..... 3 Chemistry VIII ..... 3 Chemistry V ..... 2 Chemistry IX ..... 3 Military Drill. ELECTIVES. (*Each subject three times a week, one to be chosen.*) History II, IV. French. German. Physics II. Psychology. Mathematics VIII.	English IV ..... 2 Chemistry VI ..... 4 Chemistry V ..... 3 Zoölogy II ..... 3 Military Drill. 3 ELECTIVES. (*Each subject three times a week, two to be chosen.*) FIRST GROUP. (*Only one of this group may be taken.*) History II, IV. French. German. SECOND GROUP. (*One of this group must be and two may be taken.*) Botany. Chemistry IX, VIII. Zoölogy VI. Mathematics VIII.
English IV ..... 2 Chemistry XVII ..... 3 Military Drill. ..... 12 Physics	English IV ..... 2 Mathematics VIII ..... 3 Electrical Engineering I. 3 Mechanics XIII ..... 2 Mechanics XVII ..... 3 Mechanics XVIII ..... 4 Military Drill.	English IV ..... 2 Mathematics VIII ..... 3 Electrical Engineering I. 3 Mechanics XIII ..... 2 Mechanics XVII ..... 3 Mechanics ..... 4 Military Drill. ELECTIVES. (*Each subject three times a week, one to be chosen.*) Physics III. History II.	English IV ..... 2 Chemistry VII ..... 3 Chemistry XII ..... 3 Chemistry V ..... 5 Chemistry X ..... 1 Chemistry XI ..... 1 Military Drill. ELECTIVES. (*Each subject three times a week, one to be chosen.*) History II, IV. French. German. Psychology. Physics II. Zoölogy III. Mathematics VIII.	English IV ..... 2 Chemistry V ..... 3 Zoölogy III ..... 3 Military Drill. ELECTIVES. (*Each subject three times a week, three to be chosen.*) FIRST GROUP. (*Only one of this group may be taken.*) History II, IV. French. German. SECOND GROUP. (*Two of this group must be and three may be taken.*) Chemistry V, VII. Botany. Zoölogy VII, VIII, V. Physics IV. Mathematics VIII.

SENIOR.

Fall Term.	[redacted] 11	[redacted] ..... 3 [redacted] ..... 2 [redacted] ..... 4 Mechanics XXII ..... 3 Mechanics XXIII ..... 3 Military Drill.	Political Science V ..... 3 Electrical Engineering II 3 Physics V ..... 3 Mechanics XXIII ..... 3 Thesis. Military Drill. ELECTIVES. (*Each subject three times a week, one to be chosen.*) Mathematics IX. Mathematics XI. History II, IV.	Political Science V ..... 3 Chemistry XIII ..... 3 Chemistry XIV ..... 6 Chemistry XII ..... 3 Chemistry XV ..... 3 Thesis .... Military Drill. ELECTIVES. (*Each subject three times a week, one to be chosen.*) History II, IV. French. German.	Political Science V ..... 3 Zoölogy IV ..... 2 Thesis. Military Drill. ELECTIVES. (*Each subject three times a week, three to be chosen.*) FIRST GROUP. (*Only one of this group may be taken.*) History II, IV. French II. German III. English V, VI. SECOND GROUP. (*Two of this group must be and three may be taken.*) Chemistry XIV, XIII. Botany. Zoölogy IX.
Winter Term.	Political Science VI ..... 3 Military Drill. Elective 12	Political Science VI ..... 3 Mechanics XX ..... 4 Mechanics XXII ..... 3 Mechanics XXIV ..... 3 Thesis. Military Drill.	Political Science VI ..... 3 Electrical Engineering II 3 Physics V ..... 3 Thesis. Military Drill. ELECTIVES. (*Each subject three times a week, one to be chosen.*) Mathematics IX, X. Psychology. History II, IV.	Political Science VI ..... 3 Chemistry XIII ..... 3 Chemistry XVI ..... 3 Chemistry XVII ..... 3 Chemistry XV ..... 3 Chemistry XVIII ..... 3 Thesis. Military Drill. ELECTIVES. (*Each subject three times a week, one to be chosen.*) History II, IV. French. German. Psychology.	Political Science VI ..... 3 Zoölogy IV ..... 2 Thesis. Military Drill. ELECTIVES. (*Each subject three times a week, three to be chosen.*) FIRST GROUP. (*Only one of this group may be taken.*) History II, IV. French. German. English V, VI. SECOND GROUP. (*Two of this group must be and three may be taken.*) Chemistry XIII, XVII. Zoölogy IX. Botany. Psychology.
Spring Term.	Political Science VI ..... 3 Military Drill. Elective 14	Political Science VI ..... 3 Mechanics XXI ..... 4 Mechanics XXII ..... 3 Mechanics XXV ..... 3 Thesis. Military Drill.	Political Science VI ..... 3 Electrical Engineering II 3 Physics V ..... 3 Inspection Excursions. Thesis. Military Drill. ELECTIVES. (*Each subject three times a week, one to be chosen.*) Mathematics X. Psychology. History II, IV. Physics IV.	Political Science VI ..... 3 Chemistry XIX ..... 3 Chemistry XVI ..... 3 Chemistry XVII ..... 3 Special Chemistry ..... 3 Chemistry XX ..... 1 Thesis. Military Drill. ELECTIVES. (*Each subject three times a week, one to be chosen.*) History II, IV. French. German. Psychology.	Political Science VI ..... 3 Zoölogy IV ..... 2 Thesis. Military Drill. ELECTIVES. (*Each subject three times a week, three to be chosen.*) FIRST GROUP. (*Only one of this group may be taken.*) French. English V, VI. German. History II, IV. SECOND GROUP. (*Two of these must be and three may be taken.*) Chemistry XVII. Botany. Physics IV. Zoölogy X. Psychology.

SCHOOL OF CORRESPONDENCE.

For the benefit of those who cannot attend its classes the college will undertake to conduct correspondence courses, suited to the individual, in lines of study connected with the farm or farm home, outlining a course of reading, supervising the work done, and rendering such assistance as is possible. There is no charge for tuition, the only expense to the student being that of books and postage. Arrangements have been made with the Orange Judd Co., 52 Lafayette Place, N. Y., whereby books can be obtained at reduced rates by members of the school. Further information and enrollment cards will be furnished upon application.

Address, SCHOOL OF CORRESPONDENCE,

RHODE ISLAND COLLEGE,

KINGSTON, R. I.

THE NATURE GUARD.

The Nature Guard is an organization of young people formed for the purpose of awakening in its members a livelier interest in the things of out-door life. Its primal object is to stimulate observation and to furnish a key to the coyly hidden secrets of nature, while underneath and behind it all is the desire to instil a love of nature and country life.

The movement began in October, 1899, and the following bands had been enrolled previous to the expiration of the winter term of 1900.

Name of Band.	Number of Members.
Agassiz Band, Woonsocket, R. I.	18
Altus Band, Altus, Pa.	9
Argus Band, Woonsocket, R. I.	30
Bright-Eyed Band, Westerly, R. I.	33
Buckfield Nature Band, Buckfield, Me	28
Clover-Leaf Band, Exeter, R. I.	9
Clover-Leaf Band, Mansfield, Pa.	20
Daisy Band, Phenix, R. I.	27
Daisy Band, Providence, R. I.	29
Forest Band, Westerly, R. I	35
Laurel Lake Band, Kingston, R. I.	20
Look About You Club, Providence, R. I.	44
Look Out Band, Tiverton, R. I.	15
Mary Dickerson Band, Providence, R. I	29
Mayflower Band, Madison, Conn.	13
Mother Nature's Students, Westerly, R. I.	26
Nature Observers, Providence, R. I.	31
Sylvan Band, Sylvania, Pa.	21
Washington Band, North Scituate, R. I.	6
Waterton Band, Providence, R. I.	18
Wide Awake Band, Phenix, R. I.	15
Wide Awake Band, Yantic, Conn.	10
Woodland Band, Woonsocket, R. I.	25
Young Observers of Nature, Providence, R. I.	35

For further information, address

THE NATURE GUARD,

RHODE ISLAND COLLEGE,

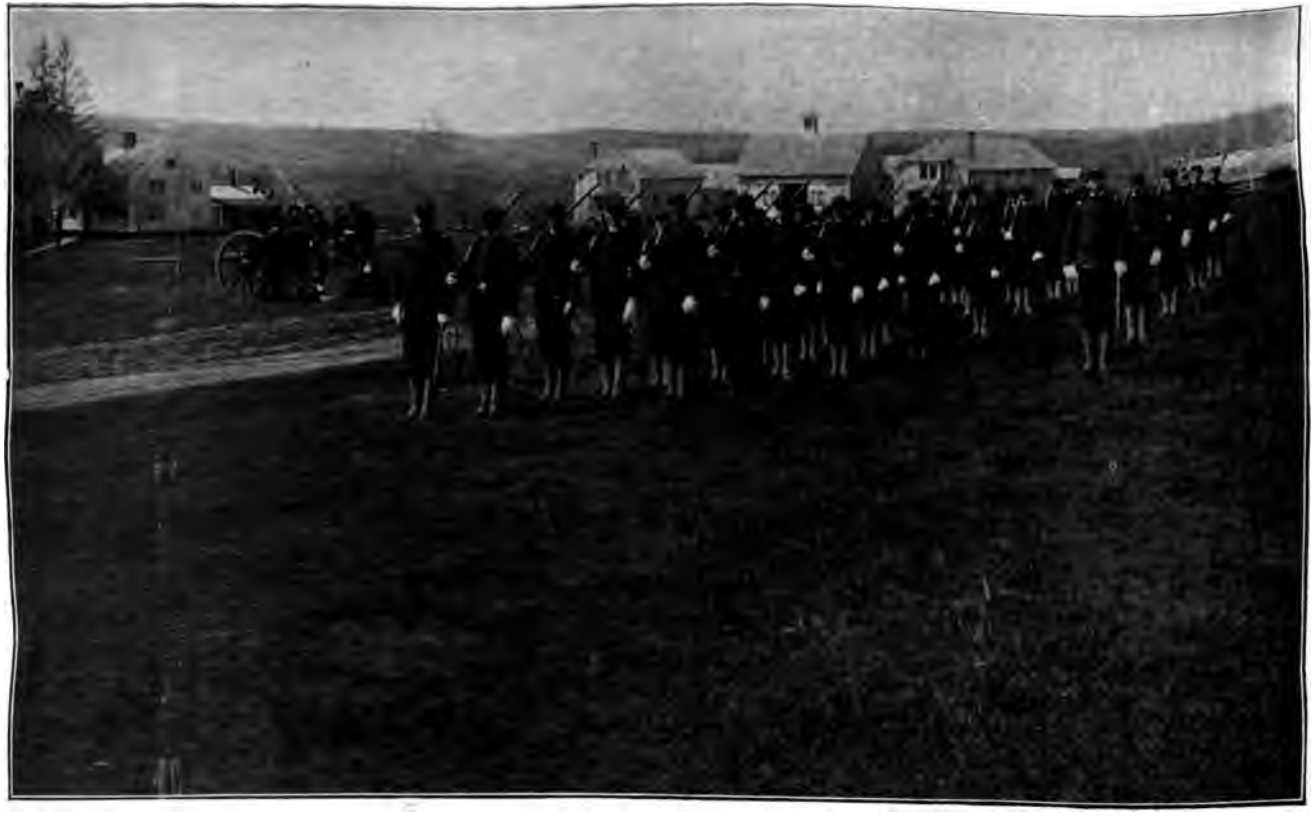
KINGSTON, R. I.

MILITARY ORGANIZATION.

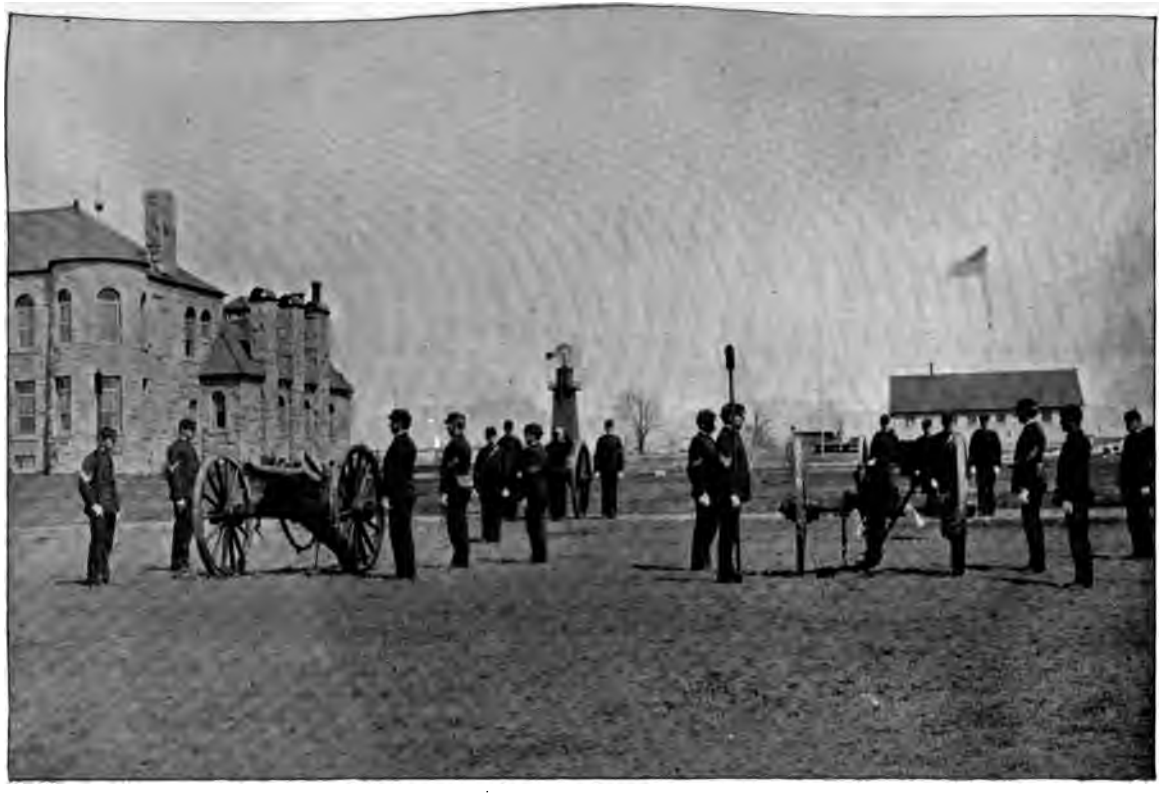
COMPANY A.

R. N. SOULE, Captain.

C. N. WHEELER.....First Lieutenant.
J. R. ELDRED.....Second Lieutenant.
H. M. BRIGHTMAN.....Third Lieutenant.
A. A. DENICO.....Sergeant.
C. S. BURGESS.....Sergeant.
H. D. SMITH.....Sergeant.
L. G. K. CLARNER, Jr.....Sergeant.
J. WILBY.....Sergeant.
B. J. CORNELL.....Corporal.
A. L. REYNOLDS.....Corporal.
O. N. FERRY.....Corporal.
R. W. PITKIN.....Corporal.
A. E. MUNRO.....Battalion Adjutant (Capt
L. CLARKE.....Bugler.



INFANTRY DRILL.



ARTILLERY DRILL.

RELIGIOUS ORGANIZATIONS.

Young Men's Christian Association.

W. M. Hoxsie ..... President.
H. D. Smith ..... Vice-President.
R. W. Pitkin ..... Cor. Secretary. / Rec. Secretary.
L. G. K. Clarner, Jr. ..... Treasurer.

Young Women's Christian Union.

B. D. Tucker ..... President.
E. S. Rodman ..... Vice-President.
E. E. Dawley ..... Secretary.
L. A. Cooke ..... Treasurer.

ALUMNI ASSOCIATION.

H. E. B. Case, President.

George A. Rodman, Secretary, Woonsocket, R. I.

J. F. Knowles, Treasurer, Kingston, R. I.

STUDENTS.

Post Graduates.

Arnold, Sarah Estelle	Wakefield,	R. I.
Cargill, Edna Maria	Abott Run,	"
Flagg, Martha Rebecca	Kingston,	"
George, Lillian Mabelle	Amesbury,	Mass.
Greenman, Adelaide Maria	Kingston,	R. I.

Graduates of 1899.

Bosworth, Alfred Willson, Sci	Boston,	Mass.
Brooks, Ralph Ordway, Sci	Somerville,	"
George, Lillian Mabelle, Sci	Amesbury,	"
Harvey, Mildred Wayne, Sci	Allenton,	R. I.
Kenyon, Blydon Ellery, Agr	Wood River Junc.,	"
Knowles, Carroll, Mech	Kingston,	"
Knowles, Harry, Sci	Point Judith,	"
Ladd, Merrill Augustus, Mech	Bay Shore,	N. Y.
Morrison, Clifford Brewster, Sci	Pawtucket,	R. I.
Owen, William Frazier, Mech	Cannonsville,	N. Y.
Payne, Ebenezer, Sci	Lyons Farms,	N. J.
Phillips, Walter Clark, Mech	Lafayette,	R. I.
Reynolds, Robert Spink, Mech	Wickford,	"
Rice, Minnie Elizabeth, Sci	Wickford,	"
Sherman, Abbie Gertrude, Sci	Kingston,	"
Sherman, George Albert, Mech	West Kingston,	"
Thompson, Sally Rodman, Sci	Wakefield,	"

Seniors.

Brightman, Henry Maxon, Sci	Westerly,	R. I.
Cross, Charles Clark, Mech	Narragansett Pier,	"
Cross, Morton Robinson, Sci	Wakefield,	"
Eldred, John Raleigh, Mech	Kingston,	"
Fison, Gertrude Sarah, Sci	Peace Dale,	"
Fry, John Joseph, Sci	East Greenwich,	"
Goddard, Edith, Sci	Brockton,	Mass.
Kenyon, Amos Langworthy, Agr	Wood River Junc.,	R. I.
Munro, Arthur Earle	Quonochontaug,	"
Soule, Ralph Nelson	East Greenwich,	"
Steere, Anthony Enoch, Mech	Chepachet,	"
Stillman, Lenora Estelle, Sci	Kenyon,	"
Tucker, Bertha Douglass, Sci	Swansea Centre,	Mass.
Wheeler, Charles Noyes, Sci	Shannock,	R. I.
Wilson, Joseph Robert, Mech	Allenton,	"

Juniors.

Briggs, Nellie Albertine, Sci	Shannock,	R. I.
Burgess, Charles Stuart, Mech	Providence,	"
Clarner, Louis George Karl, Jr., Sci	Pawtucket,	"
Dawley, Edna Ethel, Sci	Kenyon,	"
Dawley, William James, Agr	Kenyon,	"
Denico, Arthur Albertus, Sci	Narragansett Pier,	"
James, Ruth Hortense, Sci	Kenyon,	"
Reuter, Louis John, Mech	Westerly,	"
Sherman, Arthur Almy, Mech	Portsmouth,	"
Sherman, Anna Brown, Sci	Kingston,	"
Sherman, Elizabeth Agnes, Sci	West Kingston,	"
Smith, Howard Dexter, Sci	North Scituate,	"
Steere, Roena Hoxsie, Sci	Providence,	"
Wells, Emily Potter, Sci	Kingston,	"
Wilby, John, Sci	Kingston,	"

Sophomores.

Brayton, Bertha May, Biol	Fiskeville,	R. I.
Clarke, Latham, Biol	West Kingston,	"
Ferry, Oliver Needham, Mech	Palmer,	Mass.
Kenyon, Charles Franklin, Mech	Point Judith,	R. I.
Pitkin, Robert William, Mech	Providence,	"
Reynolds, Arthur Leone, El. Eng	Athol,	Mass.

Freshmen.

Barber, Kate Grace	Carolina,	R. I.
Bell, Louis Frederick, Jr	Wakefield,	"
Brennan, Thomas	Peacedale,	"
Church, Albert Sumner	Narragansett Pier,	"
Clarner, John Adam	Pawtucket,	"
Cooke, Laura Marion	Narragansett Pier,	"
Crandall, Daniel Alva	Canonchet,	"
Crandall, Elverton Jewett	Adamsville,	"
Cross, Frederick Lawrence	Narragansett Pier,	"
Cross, John Gardiner	Narragansett Pier,	"
Daniels, Robert Keeney	Glastonbury,	Conn.
Duffy, John Edward	Riverpoint,	R. I.
Goddard, Warren, Jr	Brockton,	Mass.
Hoxsie, Fred Clifford	Woodville,	R. I.
Hoxsie, Willard Munroe	Quonochontaug,	"
Keefer, Edith L	Oceanus,	N. Y.
Kent, Raymond Warren	Woonsocket,	R. I.
Loomis, William	Glastonbury,	Conn.
MacKnight, Robert Bruce	Adamsville,	R. I.
Peckham, Arthur Noyes	Kingston,	"
Quinn, Mary Louise	Wakefield,	"
Reynolds, Walter Florus	Brockton,	Mass.
Rice, George Henry	Wickford,	R. I.
Rodman, Edith Stoughtenburg	Kingston,	"

Tefft, Ernest Allen	Hope Valley,	R. I.
Wheeler, Everett Eugene	Shannock,	"
White, Mabelle Frances	Amesbury,	Mass.
Whitmore, Charles Ely	Holyoke,	"
Wood, John Amos	Hope Valley,	R. I.

Preparatory Department.

Alóma, Tiberio Garcia	Cienfuegos,	Cuba.
Barber, Ernest Clark	Shannock,	R. I.
Barber, Frank Oscar	Mystic,	Conn.
Briggs, Myron Watson	Kingston,	R. I.
Brown, Cora	West Kingston,	"
Brown, Martha Browning	Kingston,	"
Carpenter, Hortense Blakesley	Kingston,	"
Case, Elizabeth Marvin	Wakefield,	"
Champlin, Sarah Elizabeth	Kingston,	"
Clancy, John	Mystic,	Conn.
Clark, Rollin Grover	Narragansett Pier,	R. I.
Conway, William Joseph	Narragansett Pier.	"
Dorgan, Joseph	Narragansett Pier,	"
Flagg, Caleb Belcher	Kingston,	"
Gardiner, Leigh Orrin	Peace Dale,	"
Grinnell, George Francis	Narragansett Pier,	"
Harrall, Nellie Armstrong	Wakefield,	"
Hoxsie, Katharine Mertie	Woodville,	"
Jillson, Laura Agatha	Woonsocket,	"
MacDonald, James Merton	Wood River Junc.,	"
McCarthy, Charles Henry	Central Falls,	"
Murray, James Lee	Narragansett Pier,	"
Pascoe, Milton Cooper	Narragansett Pier,	"
Pearse, George Merton	Wakefield,	"
Priday, Edward Thomas	Peace Dale,	"
Redfern, John Lester	Woonsocket,	"
Sisson, Neva Maude	Wickford,	"

Thompson, Leroy Eldred	Narragansett Pier,	R. I.
Tillinghast, Emma	Slocumville,	"
Wells, Thomas Perry	Kingston,	"
Wright, Lola Rodman	Wakefield,	"

Specials.

Andrews, Carlton Garfield	Potter Hill,	R. I.
Cargill, James Edward	Abbott Run,	"
Chace, Emery Perkins	Warren,	"
Clarke, Isabelle Nye	Usquepaugh,	"
Cornell, Bailey Jordan	Croton-on-Hudson,	N.Y.
Emmet, James R	Peace Dale,	R. I.
Knowles, Leroy Weston	Point Judith,	"
Maxson, Ralph Nelson	Westerly,	"
Morton, John Garfield	New York,	N. Y.
Parkhurst, Elizabeth May	Wickford,	R. I.
Sherman, Robert Joseph	Usquepaugh,	"
Stillman, Fannie Esther	Kenyon,	"
Wightman, Levi Eugene	South Scituate,	"
Wilcox, Charles William	Kingston,	"

Specials in Wood-carving.

Armstrong, Mrs. C. H	Wakefield,	R. I.
Brown, Mary J	Kingston,	"
Clark, Mrs. George	Shannock,	"
Greenman, Mrs. A. A	Kingston,	R. I.
Johnson, Mrs. F. D	Peace Dale,	"
Kroener, Mrs. G. W	Wakefield,	"
Palmer, Mrs. J. W	Wakefield,	"
Sherman, Abbie Gertrude	Kingston,	"

Specials in Poultry School.

Andrews, Fred Matthias	Pompey,	N. Y.
Brayman, Benjamin Lewis	Wickford,	R. I.

Coggeshall, Dexter Elton	Everett,	Mass.
Currens, Robert Clifford	Kearney,	Neb.
Dornacher, Sebastian John	West Springfield,	Mass.
Flagg, Caleb Belcher	Kingston,	R. I.
Gifford, Harold Green	Barrington,	"
Harris, William Marchant	West Kingston,	"
Hodges, Mrs. Leonie Rose	Newark,	N. J.
Hope, Harry Vincent	Kingston,	R. I.
Jones, Frank Steward	Chicago,	Ill.
Marshall, John	Fleming,	N. Y.
Marshall, Margaret Elizabeth	Slocumville,	R. I.
Murray, Nelson Shepard	Little Falls,	N. Y.
Oatley, George Nichols	Allenton,	R. I.
Partelow, Earle Dexter	Wakefield,	"
Soenke, Carl Herman	Walcott,	Ia.
Stackus, Washington Graham	Southington,	Conn.
Stearns, Ralph Waldo	Jamestown,	R. I.
Stoneburn, Frederick H	Morristown,	N. Y.
Taylor, Thomas House, Jr	Plainfield,	N. J.
Thebaud, Mathilde M	New York City,	N. Y.
Tyler, Frankling Eugene	Greenville,	Me.

Nature-Study School.

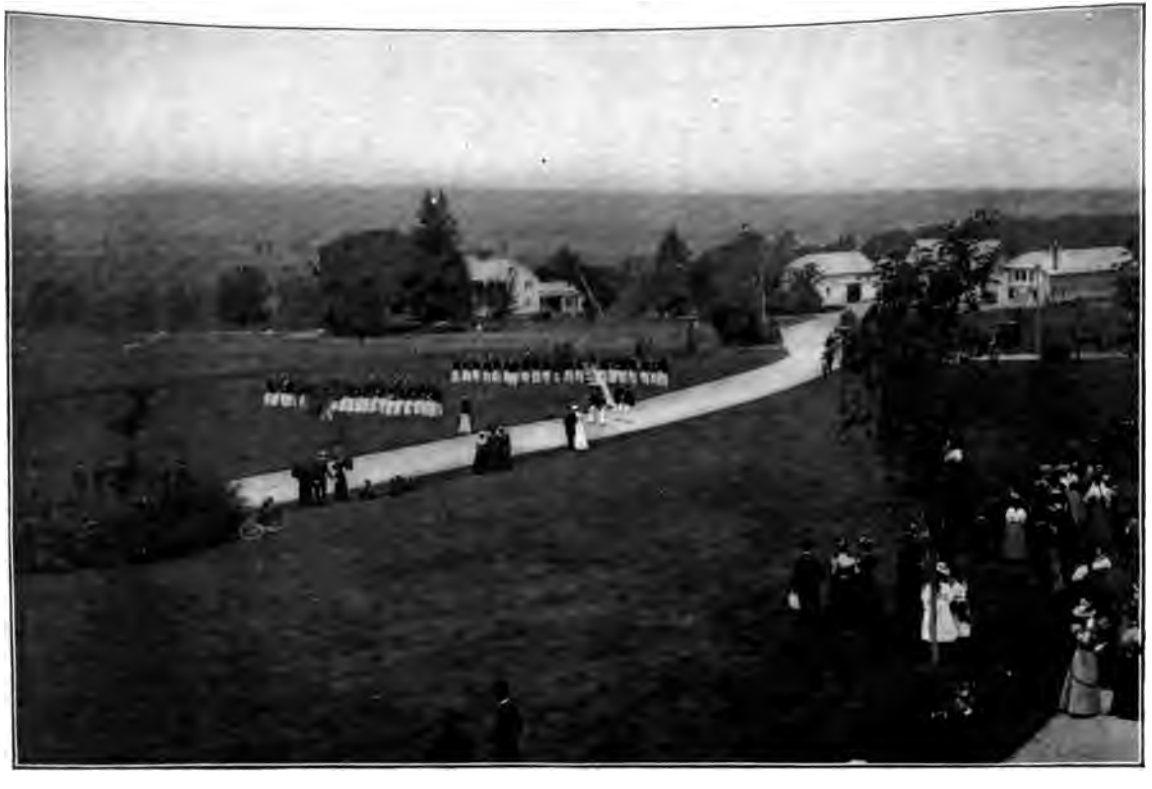
Almy, Laura E	Providence,	R. I.
Aull, Jennie E	Providence,	"
Babcock, Hattie S	Westerly,	"
Bannon, Alma	Central Falls,	"
Beckwith, Minnettie C	Providence,	"
Bennett, Katherine D	Westerly,	"
Bigelow, Edward F	Stamford,	Conn.
Bowen, Hannah S	Providence,	R. I.
Brown, Ellen P	Providence,	"
Brown, Emmie D	Providence,	"
Brown, Mary L	Providence,	"

Butler, Margaret	Pawtucket,	R. I.
Case, Alice W	Providence,	"
Case, William C	Gould,	"
Chase, Josephine P	Woonsocket,	"
Collins, Ruth	Westerly,	"
Crane, Annie	Providence,	"
Darling, Minnie	Pascoag,	"
Davis, Charles Abbott	Providence,	"
Dawley, Jennie A	Westerly,	"
Duffy, Susan G	Providence,	"
Emerson, Mary E	Providence,	"
Emmett, DePledge	Peace Dale,	"
Farrell, Elizabeth J. A	Providence,	"
Farrell, Mary A	Providence,	"
Fletcher, Sara	Providence,	"
Gage, Ellen I	Providence,	"
Gale, Alice J	Fall River,	Mass.
Greene, Alice J	Providence,	R. I.
Grinnell, Grace E	Liberty,	"
Hamlin, May W	Willimantic,	Conn.
Harris, Mary A	Providence,	R. I.
Hawkins, Avis A	Providence,	"
Helme, Bernon E	Kingston,	"
Hickox, Mrs. Abbie M	Westerly,	"
Hopkins, Abbie P	Pawtucket,	"
Houghton, Florence B	Westerly,	"
Hoxsie, Sarah	Quonochontaug,	"
Kenyon, Elizabeth,	Point Judith,	"
Kenyon, Florence R	Providence,	"
Lamphear, Gertrude	Peace Dale,	"
Leland, Cora J	Westerly,	"
Lyons, Mary	Peace Dale,	"
Mann, A. E	Westerly,	"
Martin, Isabelle F	Providence,	"
McCabe, Mary E	Pawtucket,	"

McLoughlin, Mary E	Central Falls,	R. I.
McNiff, Genevieve S	Providence,	"
Metcalf, Lucy A	Providence,	"
Miett, M. Matilda	Providence,	"
Murphy, Theresa M	Providence,	"
Payton, Carrie	Providence,	"
Peckham, Elizabeth A	South Portsmouth,	"
Randall, Ellen P	Westerly,	"
Read, Sarah R	Providence,	"
Richards, Annie B	Providence,	"
Roche, Minnie	Westerly,	"
Rose, Alice E	Wakefield,	"
Rose, Mary E	Wakefield,	"
Schaffer, Elizabeth	Providence,	"
Scholfield, Bessie M	Providence,	"
Scholfield, Mrs. S	Providence,	"
Sheldon, Cora L	Peace Dale,	"
Shields, Kate C	East Providence,	"
Smith, Jean	Westerly,	"
Sullivan, Clara L	Providence,	"
Sweeney, Ella L	Providence,	"
Taft, Eliza F. W	Providence,	"
Tyler, Harriet E	Westerly,	"
Vernon, Adelaide W	Providence,	"
Vernon, Anne T	Providence,	"
Watson, Adah S	"	"
Whitehead, Clara	"	"
Wilber, Sarah M	Pascoag,	"

Post Graduates	5
Graduates of 1899	17
Seniors	15
Juniors	15
Sophomores	6
Freshmen	29

Preparatory Department	31
Specials	14
Specials in Wood-carving	8
Poultry School	23
Nature-study School	74
Total, counting none twice	236



DRILL ON CAMPUS.

TREASURER'S REPORT.

MELVILLE BULL, *Treasurer, in account with the* RHODE ISLAND COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

1899. DR.

Jan. 1.	To cash balance on hand	$43 08
	State of Rhode Island	3,943 45
	J. H. Washburn, president, for students' board, etc.	14,920 72
	Cash received from incidentals	1,272 19
	Cash received from interest	27 50
		$20,206 94

1899. CR.

By salaries	$358 76
Postage, stationery, and printing	105 45
Freight and express	109 77
Traveling	501 37
Labor	5,455 17
Store	808 96
Furniture	10 20
Lumber, grain, fuel, implements, incidentals	6,237 64
Construction and repairs	1,285 44
Provisions	2,736 66
Boarding expense	1,877 22
Balance	720 30
	$20,206 94

THIS IS TO CERTIFY that the undersigned, auditing committee of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, have examined the accounts of Melville Bull, treasurer, as above, and find the same to be correct, leaving a balance in the said treasurer's hands of seven hundred and twenty dollars and thirty cents ($720.30).

HENRY L. GREENE,
J. V. B. WATSON,
Auditing Committee.

THE RHODE ISLAND STATE AGRICULTURAL EXPERIMENT STATION *in account with the* UNITED STATES' APPROPRIATION.

1899. DR.

	To receipts from the treasurer of the United States as per appropriation for the year ending June 30, 1899, under act of Congress approved March 2, 1887.	$15,000 00

1899. CR.

June 30.	By salaries	$7,333 46	
	Labor	2,995 42	
	Publications	759 92	
	Postage and stationery	229 03	
	Freight and express	146 88	
	Heat, light, and water	307 61	
	Chemical supplies	151 53	
	Seeds, plants, and sundry supplies	344 84	
	Fertilizers	309 25	
	Feeding-stuffs	642 65	
	Library	309 48	
	Tools, implements, and machinery	75 91	
	Furniture and fixtures	56 92	
	Scientific apparatus	157 15	
	Live stock	118 35	
	Traveling expenses	301 65	
	Contingent expenses	11 00	
	Building and repairs	748 95	
			$15,000 00

WE, the undersigned, duly appointed auditors of the corporation, do hereby certify that we have examined the books and accounts of the Rhode Island State Agricultural Experiment Station for the fiscal year ending June 30, 1899; that we have found the same well kept, and classified as above; and that the receipts for the year from the treasurer of the United States are shown to have been $15,000, and the corresponding disbursements $15,000, for all of which proper vouchers are on file, and have been by us examined and found correct, thus leaving no balance.

And we further certify that the expenditures have been solely for the purposes set forth in the act of Congress approved March 2, 1887.

Signed,

HENRY L. GREENE,
J. H. WASHBURN,
Auditors.

MELVILLE BULL, *Treasurer, in account with the* RHODE ISLAND AGRICULTURAL EXPERIMENT STATION.

1899.	DR.	
June 30.	To balance from last year	$1 90
	Station receipts	752 55
	Station receipts, fertilizer inspection	505 46
	Interest	51 79
		$1,311 70

1899.	CR.	
	By salaries	$296 48
	Labor	43 88
	Publications	26 72
	Chemical supplies	8 40
	Seeds, plants, and sundry supplies	17 10
	Fertilizer control	504 96
	Feeding-stuffs	49 00
	Library	116 13
	Tools, implements, and machinery	1 89
	Furniture and fixtures	6 18
	Traveling expenses	13 52
	Building and repairs	81 33
	Balance	146 11
		$1,311 70

This certifies that the undersigned, auditing committee of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, have examined the accounts of Melville Bull, treasurer of the Agricultural Experiment Station, and the vouchers corresponding therewith, for the year ending June 30, 1899, and find the same correct.

The total receipts are $1,311.70, and the total expenditures are $1,165.59, thus leaving a balance to new account of $146.11.

HENRY L. GREENE,
J. H. WASHBURN,
Auditors.

Synopsis of the Report of the Treasurer of the Rhode Island College of Agriculture and Mechanic Arts to the Secretary of Agriculture and the Secretary of the Interior, of amount received under Act of Congress, of August 30, 1890, in aid of Colleges of Agriculture and the Mechanic Arts, and of the disbursements thereof, to and including June 30, 1899:

Balance on hand, July 1, 1898	$5,834 09
Installment for 1898–99, received July 21, 1898	24,000 00
	$29,834 09

DISBURSEMENTS THEREOF FOR AND DURING THE YEAR ENDING JUNE 30, 1899.

SCHEDULE A.—Disbursements for Instruction in Agriculture and for facilities for such instruction	$5,765 04
SCHEDULE B.—Disbursements for Instruction in the Mechanic Arts and for facilities for such instruction	5,976 76
SCHEDULE C.—Disbursements for Instruction in English Language and for facilities for such instruction	4,542 32
SCHEDULE D.—Disbursements for Instruction in Mathematical Science and for facilities for such instruction	2,024 55
SCHEDULE E.—Disbursements for Instruction in Natural Science and for facilities for such instruction	10,080 79

SCHEDULE F.—Disbursements for the Instruction in Economic Science and for facilities for such instruction	1,006 40	
Total expended during the year		$29,395 86
Balance remaining unexpended		438 23
		$29,834 09

I HEREBY CERTIFY that the above account is correct and true, and, together with the schedules hereunto attached, truly represents the details of expenditures for the period and by the institution named; and that said expenditures were applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their application in the industries of life, and to the facilities for such instruction.

MELVILLE BULL, *Treasurer.*

llege of Agriculture

and

Mechanic Arts.

Kingston, R. I.

1907.

'lege of Agriculture

and

Mechanic Arts.

Kingston, R. I.

1907.

THIRTEENTH ANNUAL REPORT

OF THE

CORPORATION, BOARD OF MANAGERS,

OF THE

R. I. COLLEGE OF AGRICULTURE

AND

MECHANIC ARTS,

MADE TO THE

GENERAL ASSEMBLY AT ITS JANUARY SESSION, 1901.

PART I.

PART II—EXPERIMENT STATION REPORT—IS PRINTED UNDER SEPARATE COVER.

PROVIDENCE, R. I.
E. L. FREEMAN & SONS, PRINTERS TO THE STATE.
1901.

Rhode Island College of Agriculture and Mechanic Arts.

CORPORATION.

HON. MELVILLE BULL.....NEWPORT COUNTY.
HON. C. H. COGGESHALL.....BRISTOL COUNTY.
HON. HENRY L. GREENE.....KENT COUNTY.
HON. BENJAMIN A. JACKSON.....PROVIDENCE COUNTY.
HON. J. V. B. WATSON.....WASHINGTON COUNTY.

OFFICERS OF THE CORPORATION.

HON. HENRY L. GREENE, President.....P. O., RIVERPOINT, R. I.
HON. C. H. COGGESHALL, Clerk.....P. O., BRISTOL, R. I.
HON. MELVILLE BULL, Treasurer.....P. O., NEWPORT, R. I.

REPORT.

To His Excellency William Gregory, Governor, and the Honorable General Assembly of the State of Rhode Island and Providence Plantations, at its January Session, 1901:

I have the honor to submit herewith the Thirteenth Annual Report of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, as required by law.

HENRY L. GREENE,

President of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts.

FACULTY AND ASSISTANTS.

JOHN HOSEA WASHBURN, PH. D.,

PRESIDENT,

Professor of Agricultural Chemistry and Physiography,

B. S., Massachusetts Agricultural College, 1878; Graduate student, Massachusetts Agricultural College, 1881-1883; Professor of Chemistry, Storrs Agricultural School, 1883-1887; Student in Göttingen University, 1885 and 1887-1889; Ph. D., Göttingen, 1889; Appointed President, 1890.

HOMER JAY WHEELER, PH. D.,

Professor of Geology,

B. S., Massachussetts Agricultural College, 1883; Assistant Chemist, Massachusetts State Experiment Station, 1883-1887; Graduate student, University of Göttingen, 1887-1889; Ph. D., Göttingen, 1889; Appointed Chemist of Rhode Island Agricultural Experiment Station and Professor of Geology, 1890.

ANNE LUCY BOSWORTH, PH. D.,

Professor of Mathematics,

B. S., Wellesley College, 1890; First Assistant, Amesbury (Mass.) High School, 1890-1892; Appointed Professor of Mathematics, April, 1892; Graduate student at the University of Chicago, summer of 1894 and 1896; Student in Göttingen University, 1898-1899; Ph. D., Göttingen, 1899.

E. JOSEPHINE WATSON, A. M.,

Professor of Languages,

A. B., Smith College, 1882; A. M., Cornell University, 1883; Assistant in English, Smith College, 1883-1887; Student of North European Languages in Göttingen, 1887-1889; Appointed Professor of Languages, September, 1892; Student of French in Tours, summer of 1895.

WILLIAM ELISHA DRAKE, B. S.,

Professor of Mechanical Engineering,

B. S., Polytechnic Institute, Worcester, 1886; Instructor in Physics and Electricity, Worcester Polytechnic Institute, 1887; Instructor in Woodworking at Pratt Institute, Brooklyn, 1887-1888; Appointed Professor of Mechanical Engineering, 1893.

All salaries of members of the faculty are paid from United States funds.

HARRIET LATHROP MERROW, A. M.,

Professor of Botany,

B. S., Wellesley College, 1886; Teacher of Science, Plymouth (Mass.) High School, 1887-1888; Teacher of Science, Harcourt Place, Gambier, O., 1888-1891; Graduate student, University of Michigan, 1891-1892; A. M., Wellesley College, 1893; Graduate assistant, Botanical Laboratory, University of Michigan, 1893-1894; Appointed Professor of Botany, January, 1895.

ARTHUR AMBER BRIGHAM, PH. D.,

Professor of Agriculture,

B S., Massachusetts Agricultural College, 1878; Engaged in practical farming, 1878-1888; Professor of Agriculture in the Imperial Agricultural College at Sapporo, Japan, 1888-1893; Graduate student at Göttingen University, 1893-1896; Ph. D., Göttingen, 1896; Appointed Professor of Agriculture, 1896.

FRED WALLACE CARD, M. S.,

Professor of Horticulture,

B. S., Cornell University, 1892; M. S., Cornell University, 1893; Assistant Horticulturist Cornell University Experiment Station, 1893; Associate Professor of Horticulture, University of Nebraska, 1893-1898; Appointed Professor of Horticulture, 1898.

COOPER CURTICE, D. V. S., M. D.,

Professor of Zoölogy,

B. S., Cornell University, 1881; D. V. S., Columbia Veterinary College, N. Y., 1883; M. D., Columbian University, Washington, D. C., 1887; Assistant Paleozoic Paleontologist, U. S. Geological Survey, 1883-1886; Specialist, Department of Agriculture, Washington, D. C., 1886-1892; Veterinarian, State Board of Health, N. Y., 1892-1894; Tuberculosis Specialist, U. S. Department of Agriculture, Washington, D. C., 1895-1896; Professor of Zoölogy, North Carolina College of Agriculture and Mechanic Arts, 1898; State Veterinarian, North Carolina, 1899; Appointed Professor of Zoölogy, 1900.

SOLOMON E. SPARROW,

CAPTAIN 21ST INFANTRY, U. S. A.,

Professor of Military Science and Tactics,

Graduate of West Point, 1878; Detailed Professor of Military Science and Tactics, 1900.

JOHN EMERY BUCHER, A. C., PH. D.,

Associate Professor of Chemistry,

State Normal School, Millersville, Pa., 1887-1888; A. C., Lehigh University, 1891; Ph. D., Johns Hopkins University, 1894; Instructor in Organic Chemistry, Tufts College, 1894-1897; Appointed Associate Professor of Chemistry, 1897.

All salaries of members of the faculty are paid from United States funds.

ARTHUR CURTIS SCOTT, B. S.,

Assistant Professor of Physics,

B. S., R. I. College of Agriculture and Mechanic Arts, 1895; Appointed Instructor in Physics, 1895; Appointed Assistant Professor of Physics, 1897.

THOMAS CARROLL RODMAN,

Instructor in Woodwork,

Appointed 1890.

MABEL DEWITT ELDRED, B. S.,

Instructor in Drawing,

B. S., R. I. College of Agriculture and Mechanic Arts, 1895; Appointed Instructor in Drawing, 1897.

ELIZABETH WATSON KENYON, A. M.,

Instructor in Languages and History,

B. S., Mt. Holyoke College, 1896; A. M., Brown University, 1897; Instructor in English and History, Middleborough (Mass.) High School, 1898-1900; Appointed Instructor in Languages, 1900.

CHARLES BEARDSLEY, A. M.,

Instructor in Political Science,

A. B., Harvard University, 1892; Graduate Student, Harvard University, 1893-94; Instructor in Economics, Iowa State University, 1894-96; A. M., Harvard University, 1897; Student at Berlin, 1898; Instructor in Economics, Harvard University, 1898-1900; Appointed Instructor in Political Science, 1900.

SARAH WATSON SANDERSON, B. L.,

Instructor in Languages,

B. L., Smith College, 1900; Appointed Instructor in Languages, 1900.

HOWLAND BURDICK, B. S.,

Instructor in Agriculture and Farm Superintendent,

B. S., R. I. College of Agriculture and Mechanic Arts, 1895; Appointed Assistant in Agriculture, 1897.

MARSHALL HENRY TYLER, B. S.,

Instructor in Surveying and Master of the Preparatory Department,

B. S., Amherst College, 1897; Instructor at St. Mark's, 1897-1898; Appointed Master of the Preparatory Department, 1898.

All salaries of members of the faculty are paid from United States funds.

ALBERT AUGUSTUS RADTKE, B. S.,

Instructor in Physics,

B. S., University of Wisconsin, 1900; Appointed Instructor in Physics, 1900.

LUCY HELEN GAGE, A. B.,

Instructor in Stenography and Typewriting,

A. B., Tufts College, 1899; Graduate of Chandler Normal Shorthand School, 1900; Appointed Instructor in Stenography and Typewriting, 1900.

CAPTAIN TIBERIO GARCIA ALOMÁ,

Assistant Instructor in Spanish.

JOHN FRANKLIN KNOWLES, B. S.,

Assistant in Woodwork.

GEORGE BURLEIGH KNIGHT,

Assistant in Ironwork.

LILLIAN MABELLE GEORGE, B. S.,

Assistant in English and Librarian.

CARROLL KNOWLES, B. S.,

Assistant in Mechanics.

NATHANIEL HELME,

Meteorologist.

All salaries of members of the faculty are paid from United States funds.

COLLEGE CALENDAR.

1901.

WINTER TERM.

January 2, 10 A. M.....Examination of Conditioned Students.
January 2, 1 P. M.....Term begins.
January 31.....Day of Prayer for Colleges.
February 22.....Washington's Birthday.
March 29.....Term ends.

SPRING TERM.

April 8, 10 A. M.....Examination of Conditioned Students.
April 9, 1 P. M.....Term begins.
May 10.....Arbor Day.
May 30.....Memorial Day.
June 16.....Baccalaureate Sunday.
June 17.....Reading of Cincinnati Orations for Lippitt Prize.
June 18.....Commencement.
June 21, 9 A. M.... Entrance Examinations for College and Preparatory Department, given at the College; the State Normal School, Providence; and at the School Committee rooms, Clarke Street, Newport.

THE COLLEGE.

HISTORY.

IN 1863 the State of Rhode Island accepted from the United States Government the land grant scrip, which gave to each State thirty thousand acres of the public lands for each Senator and Representative in Congress. The land was to be sold by the States or their agents, the proceeds arising from the sale invested, and the annual income derived therefrom was to be "inviolably appropriated by each State which may take and claim the benefit of this act, to the endowment, support and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to Agriculture and Mechanic Arts, in such manner as the Legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

On March 2, 1887, the act known as the Hatch Act was passed, appropriating $15,000 annually to each State, for the purpose of establishing an Agricultural Experiment Station in connection with an Agricultural College or School.

From the time of the acceptance by the State of Rhode Island of the land scrip in 1863, there were many people who felt that this State did not offer to young men such advantages for instruction in agriculture and mechanic arts as others afforded that had genuine agricultural and mechanical colleges. So great was the dissatisfaction among the citizens of Rhode Island at the absence

of these educational advantages, that they were determined to have the Hatch Agricultural Experiment Station located at a *bona fide* agricultural educational institution.

The Rhode Island State Agricultural School was established according to Chapter 706 of the Public Laws, passed May 23, 1888.

The United States Congress, on August 30, 1890, passed an act known as the New Morrill Bill. This appropriated for the further support of the agricultural and mechanical colleges a sum beginning with $15,000 and continuing, with a yearly increase of $1,000, until the annual appropriation should reach $25,000.

That the school already established might receive the benefit of the act of Congress, the General Assembly amended Chapter 706 of the Public Laws, incorporating the Rhode Island College of Agriculture and Mechanic Arts.

Since September, 1892, the institution has been conducted on a college basis, with an entirely new course of study.

On April 19, 1894, the Legislature passed an act authorizing the State treasurer to pay Brown University the sum of $40,000, in consideration of which the university was to turn over to the State the proceeds of the original land grant of 1862 and to withdraw from the United States Supreme Court its suit for the Morrill fund.

On January 27, 1895, the college dormitory was destroyed by fire; but it was replaced by a new granite building, which was ready for use the first of October of the same year, and was called Davis Hall.

At the January session of the Legislature, 1897, the institution was given an appropriation for a stone building, one hundred and thirty feet by forty feet, practically three stories high. The basement has three rooms used for instruction in photography and physics, and a large room devoted to electrical engineering. On the second floor are recitation-rooms, chapel, library and reading-room, and young women's study-room. The third floor contains a large hall for drill and gymnasium purposes, above which are bath-rooms and lockers. The hall is also used for assemblies

whenever larger audiences are expected than the chapel can accommodate. This building is called Lippitt Hall.

Since then an excellent dairy barn has given the agricultural department increased facilities for instruction.

OBJECT OF THE INSTITUTION.

The college stands for the idea that technical work, properly taught, possesses educative value equal at least to that furnished by the classics, but that premature specialization is to be avoided if the best results are to be obtained; that technical education, to meet the requirements, must be based upon a sound knowledge of mathematics, the natural sciences and the English language. The method employed is technical instruction in agriculture, in the mechanic arts and in the sciences.

There are five courses leading to the degree of Bachelor of Science: the agricultural course, mechanical engineering course, electrical engineering course, chemical course and biological course. On entering, all regular students take the same course until the winter term of the Freshman year, when a choice is made. The aim of the agricultural course is to fit students not only for practical agriculture but for positions in experiment stations, as teachers, and farm superintendents. To this end thorough instruction is given in science and the application of its principles to agriculture, supplemented by a general training in mathematics and languages. The mechanical course is intended for those wishing to become mechanical engineers, as the electrical course is designed to train electrical engineers. The chemical course offers several special lines of work. A student may prepare himself to become a general chemist or a teacher; may specialize in agricultural chemistry with a view to experiment-station work; or may elect industrial chemistry with the idea of obtaining a position in a factory, dyeing establishment, or along other technical lines. The biological course offers so many electives that it is well adapted to prepare students for high-school

teaching in general science, mathematics and English. It is especially adapted to fit one to pursue a course in medicine or veterinary science, to become an assistant in an experiment station, or to take a government position in some special department of science.

PREPARATORY DEPARTMENT.

Young men and young women who have had no opportunity to receive high school instruction may enter this department to prepare for the college.

For entrance requirements, see page 47.

SPECIAL COURSES.

Whenever possible, students are urged to enter one of the courses leading to a degree. The arrangement of these courses is the result of careful thought and long experience as to the best combination of studies to fit one for the various occupations in which a technical education is required; and it is believed that no such thorough preparation can be obtained from special courses selected by the student.

Short courses in mechanics, and special work in science, are open to those unable to take the regular college work. For these courses no examination is required, except such as will satisfy the professor in charge of any branch chosen that the applicant is prepared to derive benefit from the work he wishes to elect.

SPECIAL STUDENTS IN AGRICULTURE.

Students having a working knowledge of the English branches may enter the college without examination and take those subjects which will prove of most direct benefit to them in the work of the farm. One or two years can thus be spent with excellent results. A certificate will be granted at the end of the time, showing the work covered. Such a course would consist of the study of agricultural soils, drainage, agricultural implements and apparatus,

farm fertility and its maintenance, field-crops, breeds of farm animals, stock-breeding, feeding of farm animals, dairy-husbandry, poultry-raising, farm-accounts, the principles of horticulture, fruit-growing, vegetable-gardening, landscape-gardening, physiology, entomology, bench-work, wood-turning and forging. Suitable courses in botany are also available to those having sufficient training or experience to enable them to take such courses with profit. In connection with the above, other subjects for which the student is fitted may be taken. The study of English should be included in most cases.

Among the special courses offered are the Summer School for Nature Study, of two weeks, designed for the teachers of Rhode Island; the Poultry School of six weeks, and the Horticultural School of two weeks. Payment of tuition fees for those outside the State and board for the full time is required in advance of students registering in the special courses. Those interested in these courses will please send for circulars giving a full description of them. Address the president.

REQUIREMENTS FOR ADMISSION TO THE COLLEGE, 1901.

Graduates from high schools, and other schools of similar grade, are admitted without examination, on certificates which are filled out by their principals. The candidate must apply to the college for the certificate, giving the address of his principal who is to certify him. The college will correspond with the principal, furnishing blanks for him to fill. Graduates from high schools are not admitted on diploma.

Candidates not entering the Freshman class on certificate will be examined in arithmetic; algebra; plane geometry; English grammar; advanced English; one year of German, French or Latin.

In the arithmetic examination especial attention will be paid to fractions, the metric system, simple and compound proportion, and square and cube root; thorough drill in mental arithmetic will be necessary. The applicant should have mastered all of

Wells's Academic or Wentworth's School Algebra, and Wells's Plane Geometry, or their equivalents.

The English requirements are those prescribed for entrance to the New England colleges. The student will be expected to show familiarity with the works named below. These are divided into two classes. Those marked (*a*) are to be read, and the candidate will be required to show a general knowledge of their subject-matter and of the lives of the authors. Those marked (*b*) are to be thoroughly studied, so that the candidate will be able to pass an examination upon their subject-matter and structure. To be acceptable, the candidate's paper must show a good knowledge of spelling, capitalization, punctuation, sentence and paragraph structure. The books prescribed for 1901 are the following: (*a*) Addison's The Sir Roger de Coverley Papers; Coleridge's The Ancient Mariner; Cooper's The Last of the Mohicans; Eliot's Silas Marner; Goldsmith's The Vicar of Wakefield; Lowell's The Vision of Sir Launfal; Pope's Iliad, books I, VI, XXII, XXIV; Scott's Ivanhoe; Shakespeare's The Merchant of Venice; Tennyson's The Princess. (*b*) Burke's Speech on Conciliation with America; Macaulay's Essays on Milton and Addison; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Shakespeare's Macbeth. For 1902: (*a*) Same as 1901. (*b*) Same as 1901. For 1903: (*a*) Addison's The Sir Roger de Coverley Papers; Carlyle's Essay on Burns; Coleridge's The Ancient Mariner; Eliot's Silas Marner; Goldsmith's The Vicar of Wakefield; Lowell's The Vision of Sir Launfal; Scott's Ivanhoe; Shakespeare's The Merchant of Venice, and Julius Cæsar; Tennyson's The Princess. (*b*) Same as 1901. For 1904: (*a*) Same as 1903. (*b*) Same as 1901. The language requirements cover one year's work in either French, German or Latin; and Latin is recommended. In French and German, this requirement comprises the essentials of grammar, easy reading and elementary composition. In Latin, the candidate must be prepared to study Cæsar. The following text-books are recommended: Chardenal's Complete French Course, Lyon and De Larpent's Primary French Translation Book; the Joynes-

Meissner German Grammar, Part I, or Collar's Shorter Eysenbach, Guerber's Märchen und Erzählungen, Part I; Collar and Daniel's First Latin Book or Lindsay and Rollins's Easy Latin Lessons.

ADMISSION TO ADVANCED STANDING.

Candidates may enter any of the higher classes for which they are prepared.

OPPORTUNITIES OFFERED TO WOMEN.

The courses offered to men are open to women, together with special courses. The women's dormitory will accommodate a limited number of students, and the college will on application find boarding-places for others in private families in town. Special waiting and study-rooms are provided for the women who are day students.

DOMESTIC SCIENCE.

The college offers no separate course by the title of domestic science, but all young women candidates for a degree may receive instruction in domestic science as follows. In the fall term of the Sophomore year, there is offered a three-hour elective in the construction, ventilation, plumbing, and heating of homes and school buildings. In chemistry, the adulteration of foods is studied; and analyses of milk, water, dairy products and fruits are made. Electives are offered in physiological chemistry, sanitary chemistry, and the chemistry of cooking. Hygiene and the physiology of digestion are treated in the courses in zoölogy.

EXPENSES FOR WOMEN.

Board, including room-rent, is three dollars per week. Fuel and lights are supplied at cost. Rooms are provided with necessary furniture, including mattresses, but no other bedding material. Other expenses are as given below. The women have an

opportunity to do their own washing and ironing. A Singer and a Household sewing-machine are at the disposal of all those living at the dormitory.

EXPENSES. *

Tuition is free to all Rhode Island students. The regular expenses are tabulated below:

		Per year. Minimum.	Per year. Maximum.
Men's Dormitory.	Board, $3 per week, for 36 weeks	$108 00	$108 00
	Room-rent, $3 per term	9 00	9 00
	Lights, $1 to $3 per term	3 00	9 00
	Fuel, spring and fall terms, each $3; winter term, $6	12 00	12 00
Books		15 00	30 00
Washing, 30c. to 60c. per week		10 80	21 60
Uniform for military drill, $15		7 50	30 00
Reading-room tax, 25c. per term		75	75
General expense, for damage in building, etc., 50c. per term		1 50	1 50
Laboratory fees, $2 to $10 per term		6 00	30 00
		$173 55	$251 85

The amount of laboratory fees depends upon the laboratory work taken each term. One dollar per term is charged for each of the following: botanical, zoölogical, and physical laboratories; carpenter shop; wood-turning, forge shop, machine shop, and wood-carving. This pays for the material ordinarily used in class work and for the wear and care of tools and apparatus. Any person who breaks apparatus or tools, through carelessness or neglect of instructions, will be charged the cost of the same. The chemical laboratory fee is three dollars per term for qualitative, quantitative, and organic laboratory work. This covers general chemicals and use of apparatus. Students are required to pay for breakage and for any chemicals they may use in making special preparations for themselves. Graduates pay the cost of diplomas,

* For exceptions in expenses for women, see above.

five dollars. *No diploma will be issued until the candidate has paid all term bills.* Every able-bodied male student is required to drill and to wear a uniform. The uniform must be paid for immediately on entering the college, when the students are measured for the suits. When worn only on drill and properly cared for, one uniform may last two or more years. The student may, however, wear his uniform all the time. Day students are required to deposit five dollars per term in advance. The college conveys students daily to and from the railroad station free of charge. Once at the beginning and end of each term, a team conveys trunks to and from the station. Boarding students shall pay term bills in advance, deposit fifty dollars each term, or give bond for two hundred dollars for the payment of all bills. No bond will be accepted from any member of the faculty. A reduction of fifty cents per week on board is allowed students going home Friday afternoon and returning Monday forenoon, provided that notice of the intended absence is given in advance. Those failing to give such notice will be charged full price for board. No other reduction is made for less than three whole days' absence at one time, and this only when notice is given as above. Fifteen cents extra is charged for each meal sent to a student's room, from sickness or any other cause. *All students in the men's dormitory are required to supply their own furniture and bedding.* The necessary furniture may be obtained at the college when desired. A room may be furnished for from eight to ten dollars. Iron bedsteads three feet wide are included under room-rent. The furniture, if properly kept, may be sold, when the student leaves, for one-half to three-fourths the original price. All clothing should be distinctly marked.

SELF-HELP.

A limited amount of work about the buildings, on the farm, at the experiment station, and in the laboratories, will be furnished to students who desire it and who prove industrious and trustworthy. Good students, who desire to help in paying their ex-

penses, should be able to earn from twenty-five to one hundred dollars per year, depending upon the amount of time they can spare from their studies. *No work is given to students who have not a fair standing in their classes.* The larger sums can be earned only by students who spend their vacations here at work. These opportunities are offered only to students who show a sense of responsibility in the performance of the duties assigned to them, and a disposition to render a fair equivalent of work for the compensation they receive. Thus far no worthy student has been compelled to leave the institution for lack of means.

THE LIPPITT PRIZE.

The Lippitt prize consists of a purse of one hundred dollars, offered through the generosity of ex-Governor Charles Warren Lippitt. This sum is divided into two prizes, the first of sixty and the second of forty dollars, which are awarded for the best written and delivered essays on the history of Rhode Island in the Revolution. These essays are of the nature of Cincinnati Orations and are read on the Monday preceding commencement. In 1900 the successful competitors were John Wilby, Kingston, R. I., first prize; Roena Hoxsie Steere, Providence, R. I., second prize.

DISCIPLINE.

The discipline of the institution has been delegated by the faculty to two joint committees of faculty and students, called the Activity Committees. The committee for the direction of the young women is composed of three women of the faculty and two students; and that for the young men is composed of three men of the faculty and four students, one from each class. Entertainments and exercises which are conducted by both the men and women students are sanctioned by the conference of these joint committees. It is the duty of the committees to see that the general rules of conduct for the members of the institu-

tion are observed. Money paid for dormitory expenses will not be refunded to students dismissed from the dormitory.

REGULATIONS OF THE COLLEGE.

Conditions.—Section 1.—Any student absenting himself from more than ten per cent. of the total number of recitations in any subject shall not be allowed to take his examination in that subject, except by special vote of the faculty, but shall be conditioned.

Section 2.—Examinations of conditioned students shall be held only on the days assigned in the college calendar. Any student who, after such examination, shall still have three or more conditions shall be obliged to withdraw from the college. Students still having not more than two conditions may take second examinations at the next regular time, and failing to pass, shall have no further opportunity to remove such conditions except by special vote of the faculty.

Section 3.—A student wishing to take an examination to remove a condition must make application for the same to the professor in whose department the condition was received, at least seven days before the date of the examination.

Section 4.—Students, whether regular or special, shall remove entrance conditions to both the preparatory department and the college within a year from the date of entrance, unless excused by the committee on courses of study.

Exemption from Examination.—Section 5.—Students shall be exempt from examination at the end of the term in studies in which their term averages are above eighty per cent.

Thesis.—Section 6.—Every student who is a candidate for a degree shall prepare a thesis, and shall submit it to the president of the college at least one month before the time for granting the degree.

Student Publications.—Section 7.—No student shall publish any

time to time these are bound, and prove of great value in research work.

The library is open every week day from 7:30 A. M. to 6:00 P. M., with the exception of a half-hour at noon; on Sunday it is open in the afternoon only, from 12:30 to 1:30 and from 2:30 to 5:00. The librarian or her representative is in constant attendance to aid any one in search of information. As the college is an institution designed to further the educational interests of Rhode Island, all residents of the State are urged to use its library.

LOCATION.

The college is situated on a hillside, which furnishes it with quick drainage and a delightful view. It is less than two miles from the railroad station. A macadamized road leads from the grounds to the station, insuring at all times a good walk and drive. The railroad station is situated on the New York, New Haven & Hartford Railroad, with twenty-one trains daily, in the winter, stopping at Kingston, and more in the summer. The town is a very healthful place, five or six miles from the ocean.

THE LIBRARY.

DEPARTMENTS OF INSTRUCTION.

CHEMISTRY.

DR. WASHBURN, DR. BUCHER.

Instruction in chemistry begins with the Sophomore year and consists of lectures, recitations and laboratory work; two hours of laboratory work being counted as equivalent to one period of recitation or lecture work. The course in general chemistry extends through the first two terms of this year; three periods per week being devoted to lectures and recitations and one period to laboratory work. The course in qualitative analysis extends through the second and third terms of this year, part of the time being given to lectures and recitations, but the greater part to practical work in the laboratory. The above courses are required of all candidates for a degree, as part of a liberal education, and are preparatory to the subsequent courses, which are designed for students desiring to make chemistry their profession, either as teachers or practical chemists.

The more advanced courses furnish an excellent preliminary basis for the study of medicine, biology or agriculture.

The first two courses are followed by a course in inorganic preparations, three periods per week in the third term of the Sophomore year. The subject of theoretical chemistry is begun in the general chemistry and continued in the third term of the Sophomore year, much attention being given to the application of the principles to problems. This subject is continued in a much more advanced way in the first term of the Senior year, a portion of the time being devoted to laboratory work. Quantitative analysis is

taken up in the Junior year, both gravimetric and volumetric work being required. Accuracy in the work is insisted upon. Organic chemistry begins in the first term of the Junior year and extends through five terms. It includes an extended course in organic preparations. The course also affords opportunity for work in gas analysis, metallurgy, mineralogy, blow-pipe analysis, assaying, sanitary chemistry, industrial chemistry, physiological chemistry, agricultural chemistry, toxicology, and textile coloring. In the Senior year, candidates for a degree in the chemical course are required to prepare a thesis on some chemical subject. Agricultural chemistry is required of all agricultural students and is given during the winter and spring terms of the Junior year and the fall term of the Senior year. The instruction consists of lectures of three exercises per week during the first two terms and three exercises per week of laboratory work during the third term.

The laboratory is thoroughly equipped with apparatus for the above-mentioned courses, and opportunity is given for graduate students to continue work in the above lines beyond that required for a degree. Provision is also made for special students who are unable to spend the time required by the regular courses. They may take such courses as will be of most benefit to them in the line of work they intend to follow. A large number of German, French, and English chemical journals are accessible, thus affording excellent opportunity for research work.

PHYSICS.

PROFESSOR SCOTT, MR. RADTKE.

Instruction in physics in the college course begins with the first term of the Freshman year and consists of lectures, recitations and laboratory work. The various branches grouped under this head are treated both mathematically and experimentally. Mechanics and heat are studied in the fall term, magnetism and electricity in the winter term, and sound and light in the spring

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term. The recitations are prepared chiefly from Wentworth and Hill's Text-book of Physics. The laboratory work consists of special experiments from various authors.

The study of advanced physics follows in the Sophomore year and is required throughout the year of all students in the electrical engineering course; for the fall and spring terms, of all mechanical course students; and is open as an elective to all students in other courses who have completed course I or its equivalent. This course embraces a deeper and more extended discussion of heat and mechanics of fluids in the fall term; of statics, kinetics, wave motion and sound, in the winter term; and light, electricity and magnetism, in the spring term. Hastings and Beach's General Physics is used as a text-book, supplemented by lectures.

Special instruction in photography is offered as an elective course to students who have an elementary knowledge of physics and chemistry. The course embraces lectures and recitations, together with instruction in practical methods of making negatives and photographs. A suitable photographic laboratory is provided for reproducing the appearance of tested specimens, photographs of physiographic features, microscopic structure of substances, etc., for use in the lecture-room.

A course in advanced photography is open to students who have completed the elementary course. It consists of a more extended study of the chemistry and optics of photography, and laboratory work in making bromide enlargements and lantern-slides. This is followed by the theory and use of the microscope and practical work in photo-micrography, the manipulation of the projection microscope and the optical lantern. The department is provided with room and ample apparatus for illustrating and testing every form of light that is in use in projection work, together with the apparatus for X-ray photography with either the high frequency induction coil or electrostatic machine. The theory and practice of color photography are considered, and apparatus is at hand for the projection of photographs in colors from nature.

PHYSIOGRAPHY.

DR. WASHBURN.

The Freshman class study physiography during the fall term, with two exercises per week of recitation and one of laboratory work, and during the winter with one exercise per week of laboratory work, including occasional excursions and field work.

A well-equipped physiographic laboratory, with globes, models, maps, charts and other illustrative material, together with a special library, is open to the students. Especial attention is given to the scientific phases of the study—to the chemistry and geology of the soils, the influence of air and water on the same, and the flora and fauna of the different countries. Davis's Physical Geography is taken as a basis; and Dana's Coral Islands, Shaler's Aspects of the Earth, and Dana's Characteristics of Volcanoes are thoroughly studied during the term. Five hundred lantern-slides, illustrating ethnological subjects, are projected and explained before the class. This course seems to be especially valuable to introduce the student to the scientific studies which are to follow.

GENERAL MINERALOGY.—General mineralogy is taught in the winter term of the Junior year and consists of three exercises per week. A short course dealing with the elements of crystallography is given, together with the physical and chemical characteristics of minerals, especially of the rock-making minerals composing our soils. Laboratory work in blow-pipe analysis and physical determination of minerals follows the crystallography. The course is arranged so that it may be extended as an elective for another term.

AGRICULTURAL GEOLOGY.

DR. WHEELER.

The course in agricultural geology embraces structural, dynamical and historical geology, particular attention being paid to the

THE BOTANICAL LABORATORY.

first-mentioned subdivision. A careful study is made of those minerals and rocks of importance in the formation of soils, of the agencies by which their decomposition is effected, and of the compounds which result. In this connection the instruction is designed to familiarize the student with the desirable mineral and physical features of soils, with those compounds the presence of which is undesirable or which may give rise to a greater or less degree of soil sterility, and with the means by which such conditions may be avoided or overcome. A proportionate amount of time is devoted to the history of those natural deposits of particular interest to agriculturists; such as nitrate of soda, the German potash salts, and phosphates of various kinds.

BOTANY.

PROFESSOR MERROW.

The required work in botany for students in the agricultural, biological, and chemical courses begins in the winter term of the Freshman year with a course called the biology of plants, which continues three terms. The object of this course is to give the student a knowledge of plant life, by the study of the plants themselves in the laboratory and in the field. Attention is given to representatives of the vegetable kingdom from the lowest to the highest. Some time is given to the determination of species, but the chief work of the course is the study of the structure of the plant, its activities, and its relation to its environment. In short, the course is adapted to the needs of the general student who desires a knowledge of the principles of biology as illustrated by our common plants, and also furnishes a good foundation to the student who is to follow more advanced work in botany, agriculture, horticulture or medicine. Students wishing to emphasize botany in their choice of studies in the biological and agricultural courses are given every opportunity to follow lines of work best suited to their needs. In the spring term a three-hour course is given which considers the native flora from an ecological and sys-

PSYCHOLOGY.

MR. BEARDSLEY.

An elective course in psychology is offered during the winter and spring terms, to Juniors and Seniors. James's Briefer Course is used. Lectures and recitations are supplemented by reading and simple experiments.

AGRICULTURE.

DR. BRIGHAM, MR. BURDICK.

In connection with the course in agriculture, it may be said that the foundation instruction is largely given in the study of chemistry, botany, physics, geology, anatomy, physiology, zoölogy and economics.

Following upon this fundamental knowledge, it is the aim in the agricultural course to teach the student the practical application of the scientific principles underlying technical agriculture. This is sought to be accomplished by means of lectures and recitations and by the use of text-books and reference books as far as available. The chief desire is to supplement, enforce and fix this instruction by what may be termed laboratory work in agriculture; that is, by actual educational training in the different branches of farming. The object of the agricultural course is to assist in preparing the young man to become a successful farmer and a useful citizen. The course also aims to fit the students to fill remunerative positions as managers of farms and estates.

Preliminary to the teaching of agriculture a course is taken in the winter term of the Freshman year in agricultural mechanics, including the use of tools, bench work and carpentering. Commencing in the spring term of the Freshman year, an introduction is given in the form of lectures dealing with the origin and necessity of agriculture; its relation to other occupations; the preparation for farming; the relations of air, water and sunshine, and of plant and animal life, to agriculture.

FILLING THE SILO.

In the Sophomore year a study is made of farm soils, their characteristics, classification, and adaptions, their faults and means of improvement, clearing land and preparing for crops, irrigation and land drainage, with practice in planning and constructing systems of under-draining on the college farm. In the winter term instruction is supplied in the construction, use and care of farm implements, machines and vehicles; and in the arrangement, construction and maintenance of farm buildings, fences, roads and bridges. In the spring term fertilization is dealt with, and the instruction is re-inforced by object lessons offered by the fertilization experiments of the experiment station and by the manuring of the fields for the crops of the college farm.

In the first term of the Junior year, field crops are considered. During this year horticulture is chiefly taught. (See horticulture.)

In the Senior year opportunity is provided to study live stock husbandry, including the breeds, breeding, care and management of farm animals; rational feeding of live stock; dairy husbandry; poultry-culture; farm management and accounts.

Further elective subjects are available to advanced students by special arrangement, including the history and economics of agriculture, agricultural and horticultural literature, farm law, apiculture, agricultural debate and agricultural experimentation.

During the course in agriculture occasional inspection excursions enable the students to learn what practical, successful specialists in the various branches of modern farming are doing.

Plans for short courses in agriculture and horticulture have been made. These courses would instruct special students in the principles and details underlying poultry-culture, dairying, gardening and general farming. The aim in the special courses is to provide the instruction needed to enable the student promptly to engage in a particular branch of farming or to take charge of such work as superintendent. For placing these courses in full operation the college awaits the providing by the State of additional suitable buildings and equipment, which will greatly

re-inforce the means of instruction in the regular agricultural course.

SPECIAL INSTRUCTION IN POULTRY-CULTURE.—For the past three years a short course of instruction in poultry-culture has been held during the winter term, commencing in January and continuing several weeks. The college has a strong force of regular teachers in the sciences and arts upon which poultry-culture is based, and a large number of expert poultry specialists assist as instructors.

In this special course of study the main purpose is to impart the fundamental knowledge which underlies practical poultry-keeping. Instruction is given in chemistry, zoölogy, anatomy and physiology sufficient for the foundation of the course. Embryology is taught in the biological laboratory, where also the nature and habits of poultry parasites are studied. Carpentering and the construction of poultry-houses and fences are taught in the carpenter shop. The course of study includes the following topics: poultry-plants, location, planning and establishment; drainage of the land; buildings, planning and drawing of plans, making specifications and estimates, location and arrangement, construction, heating, ventilation and furnishing; fowls, their origin, kinds, breeds and types; principles of breeding, mating, special breeding of water-fowl, turkeys, pigeons, etc.; incubation and rearing, both natural and artificial; foods, feeding, care and management; production of eggs and flesh, caponizing, fattening, killing, dressing and marketing; diseases, business methods and management, scoring, records, accounts, poultry, photography, etc. The Saturdays are devoted chiefly to inspection excursions to different poultry-farms in New England. Special public lectures are occasionally given. Opportunity is further offered to a limited number of students to supplement this special course of study by a year's practical training in the college poultry plant.

No entrance examination is required. Oral or written examinations may be given during and at the close of the course. Certificates are awarded according to merit.

POULTRY CLASS, 1900.

HORTICULTURE.

PROFESSOR CARD.

Work in horticulture is designed for students from all courses. It is felt that some knowledge of the subject may very properly form a part of every well-rounded education.

In the introductory course the aim will be to discuss principles of general importance to all who have to deal with orchard or garden crops. The courses in pomology and vegetable-gardening are designed to give practical instruction in the growing of fruits and vegetables.

Landscape-gardening is especially recommended to those who seek to appreciate the beautiful in nature or in art. Its aim is to apply the principles of beauty, as evinced in the work of nature, to the art of embellishing grounds.

Forestry touches problems of import to every citizen interested in the public welfare. Owing to the intimate relation between forests and waterflow, the subject is often of more vital importance to the manufacturer than to the farmer.

The subject of plant-breeding will appeal chiefly to those interested in the broader problems of biological development and relationship. A careful study of the amelioration and development of plants under culture throws light upon many of the general problems of evolution which are of interest to all thinking students.

The courses in reading and original investigation are designed chiefly for students who wish to make a specialty of horticulture.

A short special course in horticulture was inaugurated in 1900. The object of this course is to give the greatest amount of definite, practical instruction in the least possible time. Experts in different lines of horticultural practice are secured to give the benefit of their experience. Instruction is also given in the fundamental facts relating to soils, fertilizers and plant-life, which underlie agricultural and horticultural operations. The types of horticulture which cluster around great cities receive especial attention.

Large establishments of this class are easily reached from Kingston.

LANGUAGES.

PROFESSOR WATSON, MISS KENYON, MISS SANDERSON, SR. ALOMÁ.

The subjects grouped under this head are English, German, French, Spanish and Latin.

English—comprising composition, rhetoric and literature—may be studied throughout the course. It is required during the first three years of the course. The theory and practice of rhetoric are taught throughout the Freshman year, and the application of rhetorical principles is sought in exercises and themes. The Sophomores make a critical study of certain prose masterpieces and write essays and various short papers. The required work of the Juniors consists of a course in English history and a study of the leading poets from Chaucer to Tennyson. Collateral reading is supplied, and students are encouraged to special investigation along literary and historical lines. In the Senior year electives are offered in literature and themes.

In the courses in agriculture, mechanical engineering, electrical engineering, and chemistry, three years of foreign language study are required for graduation; one preparatory and two advanced. It is desirable that two of the three years be spent upon one language. In the biological course, four years of foreign language study are required for graduation; one preparatory and three advanced. Of the three years, two must be given to German and one to French.

A three years' course in German has been arranged, which is begun in the Freshman year. As far as possible the language itself is made the medium of instruction; and the subject is studied in grammar work, dictation, conversation and translation—from English into German and from German into English. The course is carefully graded. As soon as a small vocabulary is acquired, the student begins the reading of simple prose and poetry, passing gradually to more difficult texts.

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given to the application of the general principles to banking, finance and other present day problems.

MATHEMATICS.

DR. BOSWORTH.

Three courses in mathematics are prescribed for all candidates for a degree; the subjects being higher algebra, plane trigonometry, and solid and spherical geometry. The work extends throughout the Freshman year and is of the utmost importance, both as a basis for further work in mathematics and science, and as a means for developing the power of logical reasoning and of exact and concise expression. It is the aim throughout the course to select such problems and applications as shall have direct bearing upon practical subjects.

Courses in analytical geometry and calculus are required of students in the mechanical and electrical engineering courses, in addition to the above, and a number of electives are open to students who propose to make a specialty of mathematics or of any of the sciences which depend largely upon it.

The course in analytical geometry includes the subject of loci and their equations, the analytical demonstration of many geometrical theorems, and the simpler properties of the conic sections. The work in calculus includes the differentiation of algebraic, trigonometric, anti-trigonometric, exponential, and logarithmic functions, successive differentiation, and the integration of simple functions, illustrated by applications to the rectification of plane curves, the areas of plane curves, and the surface and volume of solids of revolution. The fundamental formulas of mechanics are developed and illustrated. The more familiar devices for integration are studied, and a short time is devoted to the interesting subject of curve-tracing.

Students wishing to prepare for advanced work along the lines of mechanical or electrical engineering are especially advised to elect courses in advanced integral calculus, analytical mechanics,

and differential equations; while those who desire an insight into the development of modern pure mathematics may elect work in projective geometry, modern analytical geometry, theory of equations, and theory of functions.

CIVIL ENGINEERING.

MR. TYLER.

It is intended in this department to give an opportunity to study the fundamental principles which are the basis of all civil engineering work.

The equipment consists of transits, levels, compasses, solar attachments, hand instruments, planimeters, slide rulers, mercury and aneroid barometers, tapes, chains, level and stadia rods, etc. Among the transits are two Buff and Berger instruments.

The college and adjacent properties furnish an opportunity for all kinds of surface surveying, without loss of time in going to and from the work. A chain of lakes about one-half a mile away gives an excellent chance for hydrographic work.

The drill-hall offers opportunity for performing various experiments with tapes and chains.

HOME SANITATION.

PROFESSOR SCOTT.

This course is given in the fall term and is open to Juniors, Seniors, and Specials who have sufficient preparation. Merriman's Sanitary Engineering is used as a text-book and is supplemented by lectures on the movements of ground-water; sources of potable water; water pollution; natural and artificial methods of purification; the interpretation of water analyses. Practical plumbing in dwellings and plumbing materials are discussed both with reference to water supply and sewage disposal in suburban and rural districts. Inspection excursions are taken to pumping-

stations and storage reservoirs and practical plants connected with sewerage systems.

The winter and spring terms are devoted to a study, by lectures and recitations, of the heating and ventilation of buildings, together with experimental laboratory work on the different systems in general use. The laboratory is heated both by the direct and the plenum systems, the latter having an eight-foot fan with fifteen horse-power engine for driving the same, the system being arranged to impel both hot and cold air at the same time. There is also a practical arrangement in use for heating by exhaust steam, and these, together with other systems in use at the college, and minor facilities, such as a six-foot fan driven by an electric motor, other small fans, anemometers, manometers, facilities for the determination of carbon dioxide, bacteria in air, etc., make the laboratory work in practical testing of much value to the student.

This course is given throughout the Junior and Senior years, alternating with a course in methods of refrigeration and cold storage.

Experimental laboratory work is given in refrigeration as far as practicable, and inspection excursions are made to typical heating and ventilating systems and cold-storage plants in the respective courses. Preparation for the course necessitates a knowledge of mathematics, physics, chemistry, surveying, and elementary mechanics.

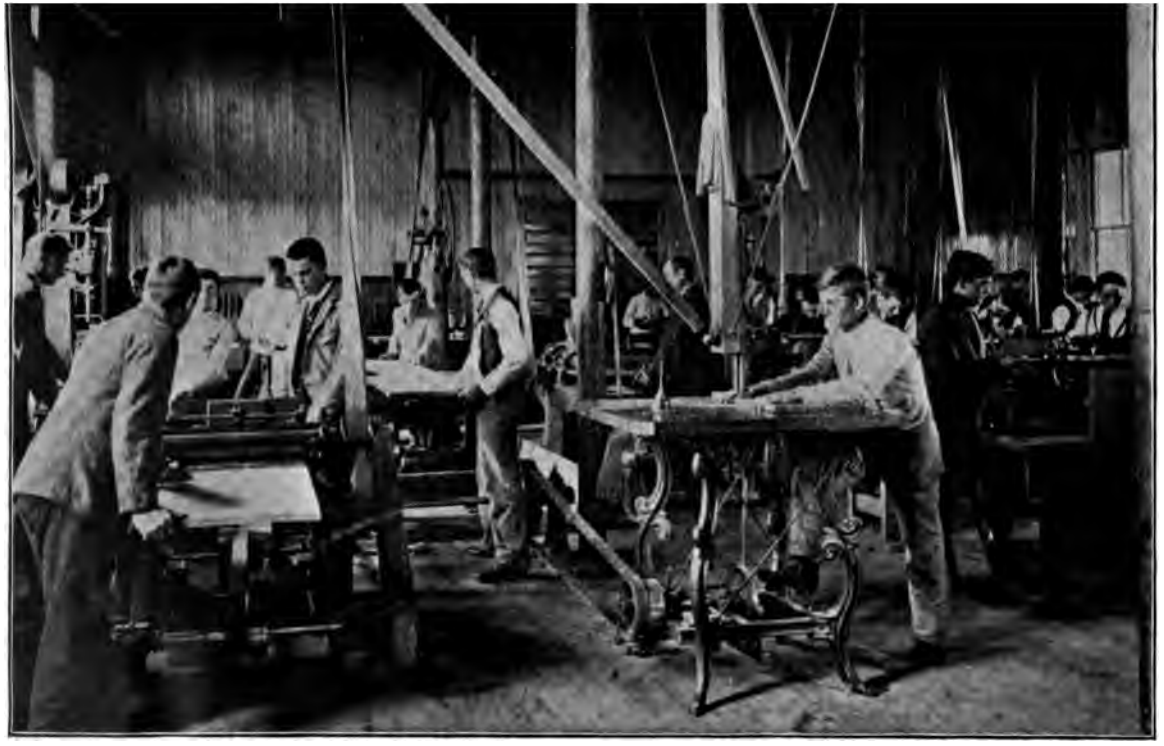
MECHANICAL ENGINEERING.

PROFESSOR DRAKE, MR. KNOWLES, MR. KNIGHT.

The aim of this department is to give sound theoretical and thorough practical training to students who seek to prepare themselves for useful and responsible positions. The course offered in shop-work will furnish such training as will ensure, other things being equal, marked success in mechanical pursuits subsequent to graduation. The regular four years' course deals with mechanical engineering as applicable to the industries carried on in New England and particularly in Rhode Island. Special attention is

LADD LABORATORY.

THE CARPENTER SHOP.



THE WOOD-WORKING MACHINERY.

given to the designs and the economical operation of shops and mills, and of manufacturing and industrial machinery. The subjects of mechanism, metallurgy, heating and ventilation of buildings, engineering specifications, and laws of contracts are treated by lectures and text-books. The several laboratories are well equipped for working in wood and metals and for the testing of materials used in construction. Students in the course of mechanical engineering receive instruction in bench-work in wood, wood-turning, pattern-making, forging, machine-shop work and mechanical drawing.

Students in the agricultural course receive instruction in wood-working and forging, and may elect other work with the advice and consent of the committee on studies.

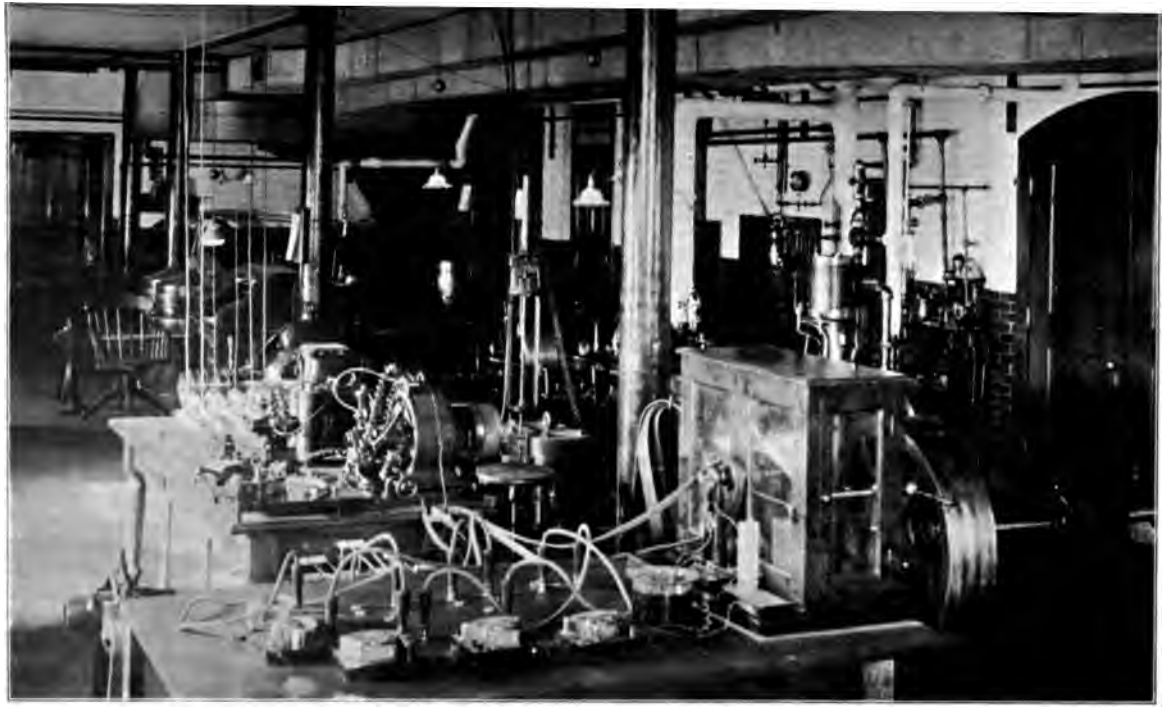
The carpenter shop contains benches and tools sufficient to accommodate twenty-four students at one time. The course is designed to give skill and confidence in working the various kinds of wood, and also to impart a fair knowledge of the principles of building and construction. A series of practical lectures upon the art of estimating the cost of various constructions of wood is given to the agricultural students of the Sophomore year. The wood-turning room contains thirteen lathes, each with its complete set of gouges and turning tools. In the same room are benches for pattern-making, and also power machinery for working wood; such as circular saw, hand-saw, jig-saw, surface-planer, buzz-planer, mortising-machine, dowel-machine and others. All students take wood-turning, and during the period each has practice under the direct charge of the engineer in care of the shop, boiler and engine. The engine is of thirty horse-power. The work in pattern-making given to the students in the mechanical department consists in the making of selected pieces to illustrate the principles of shrinkage, drafts, finish, core-box making, built-up work, and the general requirements of pattern-making.

The forge shop will accommodate twelve students at one time. It contains twelve forges and anvils, a stock-cutter, a bolt-header, a post-drill, and is well supplied with all the hammers, tongs, and

other forge and anvil tools necessary for complete work. A regular course is followed here as in other lines; and for the students of the agricultural course the work is of such a nature as is found about a farm. The various operations of drawing, bending, upsetting, and welding are taught and applied in the making of such useful pieces as staples, hooks, chains, and iron work for farm tools. The students of the mechanical department follow a similar course, but in a direction more suited to the machine shop. Bolts, nuts, machine-forgings, chisels, and lathe tools are made, and afterward put to practical use. Only students in the mechanical and electrical engineering courses work in the machine shop.

The course here is designed to give a sure knowledge of and intelligent practice in the best modern methods of using the various tools; such as lathes, planers, drills, milling-machines and grinding-machines. A course of hand work at the bench is offered, and includes instruction in chipping, filing, scraping and finishing. Students of former years have made an engine, dynamo, speed lathe, full set of arbors, set of nut arbors, and a variety of other tools.

In experimental engineering the students make tests of engines, boilers, pumps, steam gauges, injectors and a hydraulic ram. The strength of materials is investigated theoretically in class under the head of mechanics of materials, and practically in the laboratory by conducting tests upon specimens of wood, iron, steel, brick, stone, cement, boiler-plate, etc. In hydraulics, water-meters are calibrated, and measurements of water made by orifices and wiers. During the spring term of the Senior year the class ir mechanical engineering holds semi-weekly conferences; report are given upon articles in the industrial magazines and journal and engineering subjects of general interest are discussed. T following are some of the topics considered: types of steam-boile furnaces, boiler-feeders, fuels, lubricants, gas and heat engir preparation and use of wood, cutting-tools for metals, pumpi machinery.



THE ELECTRICAL ENGINEERING LABORATORY.

DRAWING.

PROFESSOR DRAKE, MISS ELDRED.

MECHANICAL DRAWING is required for a period of three years. Students keep notebooks, in which freehand sketches are made from models; and these sketches are afterward worked up into finished drawings. The making of working drawings for some machine completes the course. Practice in tracing and blue printing is given to all students. The course in drawing is designed to aid in the corresponding courses of shop work and not to produce professional draughtsmen.

FREEHAND DRAWING.—Freehand drawing is taught in the fall and spring terms and is required in the fall term, Freshman year. The required work comprises the study of perspective and values from objects, still life, and simple casts. Memory sketches of the objects drawn are expected of each student, who is also required to leave at the college a specimen of his work. The library contains an excellent collection of art books. In addition to the art electives, comprising drawing from still life and the cast, painting in oil, pastel and water-color, and modeling, special work will be arranged for scientific and mechanical students. An hour's study of the history of art, by means of reading, lectures and the use of photographs, with which the studio is well supplied, may be substituted for one hour of the three-hour art elective offered in the spring term, Sophomore year.

ELECTRICAL ENGINEERING.

PROFESSOR SCOTT, MR. RADTKE.

The course in electrical engineering is offered to students who have completed courses I and II in physics.

The studies in electro-technology embrace fundamentally the theory of electricity and magnetism, followed by a thorough treatment of the various technical applications of electricity. These

include the theory, design and manipulation of continuous and alternating current generators and motors, transformers, and the storage battery; the design of generating and distributing plants for light and power; electrical testing; electro-metallurgy; telegraphy; telephony; electric signalling. The department is provided with a satisfactory plant for laboratory purposes, containing two sixty horse-power water-tube boilers; two high speed engines of fifty and fifteen horse-power; one thirty K. W. 1000-v. Westinghouse compound alternator with exciter; two 110-v. continuous current generators, one twenty-five K. W., and the other eight K. W.; a storage battery of 110-30 amp.-hour cells; several small dynamos and motors; transformers; condensers; arc and incandescent lamps; Lord Kelvin and Weston voltmeters and ammeters; dynamometers; wattmeters; galvanometers; Wheatstone bridges; standard cells, and rheostats. Adequate means are supplied by a photometry room for testing and comparing electric and other forms of illuminating apparatus. The laboratory has also a two horse-power standard Leffel turbine water-wheel, engine lathe, and suitable material for the repairing and making of apparatus.

The course is open to special students who may not be able to spend the time for obtaining a degree. They will take such subjects as will most readily prepare them for their intended line of work.

STENOGRAPHY AND TYPEWRITING.

MISS GAGE.

Stenography and typewriting are offered as electives. A thorough knowledge of the common English branches is required of every one taking the course. The Chandler Practical Shorthand and either the touch or sight system of typewriting are taught. The shorthand work may be divided into two parts: first, the perfecting of the knowledge of the system; second, a graded course in dictation. In typewriting, the students are given a series of exercises consisting of words, sentences, phrases, business letters and

DRILL ON CAMPUS.

STUDENTS IN DRILL HALL.

forms, and other matter selected with reference to its variety and scope. Absolute accuracy is required from the first in both subjects, and particular attention is paid to spelling and punctuation.

MILITARY ORGANIZATION.

CAPTAIN SPARROW.

For the past three years, since the recall of Captain W. W. Wotherspoon for duty in the Philippines, the Senior class of the college has drilled the other students in the school of the soldier. On December 16, 1900, the president of the United States detailed Captain S. E. Sparrow as professor of military science and tactics at this institution. He will begin his duties on January 2, 1901. During the fall term of 1900 the military organization was as follows:

Captains	A. A. Denico,
	C. S. Burgess.
Lieutenants	H. D. Smith,
	J. Wilby,
	L. G. K. Clarner.
Sergeants	B. J. Cornell,
	A. L. Reynolds,
	O. N. Ferry,
	R. W. Pitkin.

COURSES OF INSTRUCTION.

The following courses of instruction are offered in the differen t departments. All studies required of regular students lead to the degree of Bachelor of Science.

CHEMISTRY.

I. General Chemistry.—Lectures, recitations and laboratory work. *Fall and Winter terms, Sophomore year;* lectures and recitations, *3 exercises per week;* laboratory work, *1 exercise of 2 hours per week. Required of all candidates for a degree.*

II. Qualitative Analysis.— *Winter term, Sophomore year; 2 exercises of 2 hours each per week. Spring term, Sophomore year; 3 exercises of 2 hours each per week. Required of all candidates for a degree.*

III. Inorganic Preparations.—*Spring term, Sophomore year; 3 exercises of 2 hours each per week. Required of students in the Chemical course, elective for other students.*

IV. Theoretical Chemistry.—Lectures and recitations. *Spring term, Sophomore year; 3 exercises per week. Required of students in the Chemical course, elective for other students.*

V. Quantitative Analysis. — Gravimetric and Volumetric. *Throughout the Junior year. Fall term; 5 exercises of 2 hours each per week, required of students in the Chemical course; 3 exercises of 2 hours each per week, required of students in the Agricultural course; 2 exercises of 2 hours each per week, required*

of students in Mechanical and Electrical Engineering courses. Winter term; 3 exercises of 2 hours each per week. Required of students in the Chemical course. Spring term; 5 exercises of 2 hours each per week. Required of students in the Chemical course; elective, open to students in the Biological course.

VI. **Organic Chemistry.**—Lectures, recitations and laboratory work. *Fall and winter terms, Junior year;* lectures and recitations, *3 exercises per week;* laboratory work, *1 exercise of 2 hours per week. Fall term, required of students in the Chemical, Agricultural, and Biological courses. Winter term, required of students in the Chemical and Biological courses.*

VII. **Organic Preparations.**—*Spring term, Junior year; 3 exercises of 2 hours each per week. Required of students in the Chemical course; elective, open to students in the Biological course.*

VIII. **Sanitary Chemistry.**— *Winter term, Junior year; 3 exercises of 2 hours each per week. Required of students in the Chemical course; elective, open to students in the Biological course.*

IX. **Mineralogy and Blowpipe Analysis.**— *Winter term, Junior year; 3 exercises of 2 hours each per week. Required of students in the Chemical course; elective, open to students in the Biological course.*

X. **Gas Analysis.**—*Spring term, Junior year; 1 exercise of 2 hours per week. Required of students in the Chemical course.*

XI. **Assaying.**—*Spring term, Junior year; 1 exercise of 2 hours per week. Required of students in the Chemical course.*

XII. **Industrial Chemistry.**—Lectures and recitations. *Spring term, Junior year, and Fall term, Senior year; 3 exercises per week. Required of students in the Chemical course.*

XIII. Organic Chemistry (Advanced course).—*Fall and Winter terms, Senior year; 3 exercises per week. Required of students in the Chemical course; elective, open to students in the Biological course.*

XIV. Theoretical Chemistry (Advanced course).—Lectures recitations and laboratory work. *Fall term, Senior year;* lectures and recitations, *4 exercises per week;* laboratory work, *2 exercises of 2 hours each per week. Required of students in the Chemical course; elective, open to students in the Biological course.*

XV. Physiological Chemistry.—*Fall and Winter terms, Senior year; 3 exercises per week. Required of students in the Chemical course.*

XVI. Textile Coloring.—*Winter and Spring terms, Senior year; 3 exercises per week. Required of students in the Chemical course.*

XVII. Agricultural Chemistry.—*Winter and Spring terms, Junior year; 3 exercises per week. Fall term, Senior year; 3 exercises per week. Required of students in the Agricultural course. Winter and Spring terms, Senior year; 3 exercises per week, taken with the Juniors. Required of students in the Chemical course; elective, open to students in the Biological course.*

XVIII. Electro-Chemistry.—*Winter term, Senior year; 3 exercises per week. Required of students in the Chemical course.*

XIX. Metallurgy.—Lectures and recitations. *Spring term, Senior year; 3 exercises per week. Required of students in the Chemical course.*

XX. Toxicology.—*Spring term, Senior year; 1 exercise of hours per week. Required of students in the Chemical course.*

XXI.—Thesis Work. *Throughout the Senior year. Required of students in the Chemical course.*

PHYSICS.

I. General Course.—Study of mechanics, hydraulics, pneumatics and heat, *Fall term;* electricity and magnetism, *Winter term;* sound and light, *Spring term, Freshman year;* recitations, *2 exercises per week;* laboratory work, *1 exercise per week. Required of all candidates for a degree*

II. Advanced Physics.—*Throughout the year;* recitations, *2 exercises per week;* laboratory work, *2 exercises per week. Required of Sophomores in Electrical Engineering course. Required of students in Mechanical Engineering course, 3 exercises per week, Fall and Spring terms; elective, open to students in other courses who have completed Physics I or its equivalent.*

III. Elementary Photography.—A course of lectures and recitations upon the optics and chemistry of photography, together with practical photographic work. *Spring term;* lectures, *2 exercises per week;* laboratory work, *1 exercise per week; elective, open to all students.*

IV. Advanced Photography.—A course of lectures on photomicrography, the making of lantern-slides and bromide enlargements, and the manipulation of the optical lantern. *Spring term;* lectures, *1 exercise per week;* laboratory work, *2 exercises per week; elective, open to students who have taken course I.*

PHYSIOGRAPHY.

*II. Tarr's Physical Geography, with required reading from reference books.—Laboratory work and excursions. *Fall term, Freshman year; 3 exercises per week: Winter term, Freshman year; 1 exercise per week. Required of all candidates for a degree.*

III. Mineralogy. See Chemistry, IX.

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*Course I is given in the preparatory department.

GEOLOGY.

I. Agricultural Geology.—Lectures and recitations. *Wi term, Senior year; 2 exercises per week. Elective.*

BOTANY.

I. Biology of Plants.—The general principles of biology a illustrated by our common plants. Laboratory, reading and le tures. *Winter and Spring terms, Freshman year, and Fall ter Sophomore year; 3 exercises of 2 hours each per week. Requir of students in the Agricultural, Biological, and Chemical cours*

II. Fungi.—A study of fungi with special reference to pa sitic forms of economic importance. Laboratory, reading and le tures. *Elective; open to students who have taken course I. Ho arranged with instructor.*

III. Histology.—Laboratory, reading and lectures. The lab ratory work includes methods of imbedding, sectioning, staini and mounting. *Elective; open to students who have taken cou I. Hours arranged with instructor.*

IV. A study of the Spring Flora of Kingston, with practice the identification of species. Field and laboratory, *Spring ter 3 exercises per week. Elective; open to students who have ta course I.*

V. Plant-Life.—A study of the plant and its environment. T functions of root, stem and leaf, reproduction, and plant diseas are treated. Lectures and reading, illustrated by models, char demonstrations, and field and laboratory work. *A six wee course given in the winter school of Horticulture.*

By consulting the instructor other arrangements may sometim be made for those desiring to elect work in botany.

ZOÖLOGY.

I. (A) Physiology.— *Winter and Spring terms, Sophomore year; 3 exercises per week. Required of Agricultural, Biological, and Chemical students.*

II. Farm Animals.—*Fall, Winter and Spring terms, Senior year; 3 exercises per week. Elective for Agricultural students.*

II. (A) Vertebrates.—As far as possible farm animals are used as types. *Fall term, Sophomore year; 3 exercises per week. Required of Biological students. Elective for Agricultural students.*

II. (B) Laboratory.—Students may elect their laboratory work in either the botanical or zoölogical laboratories by arrangement. Types: fish, frog, fowl, cat, man. *Winter term, Junior year; 3 exercises per week. Elective for Biological students.*

III. Invertebrates.—*Fall term, Junior year; 3 exercises per week. Required of Biological students.*

III. (A) Laboratory.—Types: Amœba, Paramœcium, Vorticella, Hydra, earthworm, etc. *Fall term, Junior year; 3 exercises per week. Elective for Biological students.*

IV. (A) Embryology (Elementary).—Types: eggs of frogs and fowls. *Spring term, Junior year; 3 exercises per week. Elective.*

IV. (B) Poultry and Parasites.— *Winter term, 5 exercises per week. Elective. Required for short course Poultry students.*

V. (A) Anatomical Technology.—Type: the cat. *Fall, Winter and Spring terms, Junior year; 6 exercises per week. Elective for Biological students.*

VI. Histologic Technology.—*Fall and Winter terms, Senior year; 6 exercises per week. Elective for Biological students.*

VII. Entomology.—*Spring term, Junior year; 3 exercises per week. Elective for Agricultural and Biological students.*

VII. (A) Economic Entomology.—*Spring and Fall terms, Junior year; 3 exercises per week. Elective for Agricultural and Biological students.*

VIII. Animal Biology.—*Special studies will be allowed those of the Seniors who have passed the Junior work; not less than 3 periods of 3 hours per week may be taken. Elective for Biological students.*

PSYCHOLOGY.

I. Elementary Course.—Lectures, recitations, simple laboratory experiments. *Winter and Spring terms; 3 exercises per week. Elective for Juniors and Seniors.*

AGRICULTURE.

I. Introduction.—Definition of terms; origin and necessity of agriculture; relations of agriculture to other industries; agriculture as an occupation; education for agriculture; the atmosphere and sunshine in relation to agriculture; plant and animal life in agriculture. *Spring term, Freshman year; 2 exercises per week. Required of Agricultural students.*

II. Soils.—*The origin, formation and deposition of soils are studied under physiography; the composition, mechanical and chemical analysis under agricultural chemistry; the physical properties and relations under soil-physics.* Agricultural Soils.—Definition; function; variation; classification; adaptation; location; examination; faults; improvement and preparation; clearing land; grading; mixing soils; paring and burning; reclaiming land; irrigation. *Fall term, Sophomore year; two exercises per week for one-half term. Required of Agricultural students.*

III. Land Drainage.—Sources of water; necessity of drainage; kinds of drains; action of drains; planning systems of drainage; drain tiles; construction and care of drains; cost and value of drains; sanitary effects of drainage. *Fall term, Sophomore year;*

2 exercises per week for one-half term. Required of Agricultural students.

IV. Agricultural Apparatus and Constructions.—Farm tools; implements; machines and vehicles; farm buildings; fences; roads and bridges—arrangement, construction, care and maintenance. *Winter term, Sophomore year; 3 exercises per week. Required of Agricultural students.*

V. Farm Fertilization.—Introduction; classification of manures, atmospheric, mineral and organic; manurial sources of potash, lime, magnesia, soda, iron, phosphates and nitrogen salts; animal manure, stable manure, composition and management; liquid manure; farm sewage; guanos; fish fertilizers; animal refuse; peat; green manuring; sea-weeds; vegetable refuse and by-products; composts; divisors for manures; application and action of manures; valuation of manures. *Spring term, Sophomore year; 2 exercises per week. Required of Agricultural students.*

VI. Field Crops.—Balancing of farm; rotation of crops; grass-land; wood-land; tillage-land; preparation of land, planting, cultivating, harvesting, storing and disposal of crops; special consideration of the hay crop, fodder crops, Indian corn, potatoes, root crops, field and garden vegetables; weeds. *Fall term, Junior year; 2 exercises per week. Elective.*

VII. Breeds of Farm Animals.—Origin, history, characteristics and adaptability of the leading breeds of the horse, neat cattle, sheep, swine and poultry; scoring; tracing pedigrees; breeders' associations. *Fall term, Senior year; 2 exercises per week. Elective.*

VIII. Breeding of Live Stock.—The principles of breeding; heredity; atavism; correlation; variation; fecundity; in-breeding; cross-breeding; relative influence of parents; sex; pedigree; form; selection; the breeding, care and management of the horse, neat cattle, sheep, swine and poultry. *Fall term, Senior year; 3 exercises per week. Elective.*

IX. History of Agriculture.—Agriculture in relation to civilization; fisher and hunter-folk; nomads; tillers of the soil; development of tillage; history of the plow; crop rotation; irrigation; fertilization; general and special farming; agricultural education; agricultural experimentation; evolution of farming implements; the farm and the farmer to-day. *Fall term, Senior year; 2 exercises per week. Elective by special arrangement.*

X. Feeding of Farm Animals.—Principles of rational feeding; animal body, composition, processes of digestion, assimilation and excrementation; feeding-stuffs, composition and digestibility; nutrients; feeding-standards; formulating rations; selection of feeding-stuffs; preparation of food; methods of feeding; utility of shelter; special feeding of horse, cow, sheep, swine and poultry. *Winter term, Senior year; 3 exercises per week. Elective.*

XI. Dairy Husbandry.—Breeds and breeding of dairy cattle; barns and dairy buildings; milk production, composition; management, æration, pasteurization, sterilization, testing, transportation and marketing; creaming; butter-making; cheese-making; milk-preservation, condensed milk, milk-sugar, etc. *Winter term, Senior year; 3 exercises per week. Elective.*

XII. Poultry Raising.—Domestic fowls—kinds, breeds, selection and breeding; buildings—location and arrangement, construction and furnishing, ventilation, yards and parks; foods and feeding, care and management, production of eggs and flesh, fattening; dressing and marketing; incubation, natural and artificial; rearing; diseases and enemies; caponizing; records and accounts; special management of turkeys, geese, ducks and pigeons. *Winter term, Senior year; 2 exercises per week. Elective.*

XIII. Agricultural Economics.—The mutual relations of agriculture and the body politic; the position of agriculture; independence of agriculture; state intervention; legislation; tariff; bounties; taxation; insurance; credit; reward; census; moral and social aspects of agriculture; division and distribution of

farms; size of farms; extensive and intensive farming; ownership of land; inheritance; nationalization of land; government lands; colonization; agricultural laborers, machinery, experimentation; education; association; coöperation; press; agricultural improvement; reclamation and irrigation of land; diversification of products. *Winter term, Senior year; 2 exercises per week. Elective by special arrangement for students who have taken Agriculture IX.*

XIV. Agricultural Literature.—An opportunity to read and study in any special line of agriculture for which the student is prepared. Examination and consideration of reports and bulletins of the agricultural experiment stations. *Winter term, Senior year; 2 exercises per week. Elective by special arrangement.*

XV. Farm Management.—Introduction and definitions; farming requisites; farm production and market relations; capital—permanent, floating and perishable—distribution in land, buildings, apparatus, live stock and supplies; labor and power; machinery; kind of farming; size of farm; system of farming; ownership or rental of farm; maintenance and management; returns and results; inventory, and balancing of accounts. *Spring term, Senior year; 5 exercises per week. Elective.*

XVI. Farm Accounts and Records.—The principles and methods of book-keeping in their application to the keeping of farm accounts; diary; note-book; calendar; records and accounts of special departments, crops, fields and animals; calculations; estimates and valuations; inventories. *Spring term, Senior year; 1 exercise per week. Elective.*

XVII. Farm Law.—The legal rights and liabilities of farmers; purchase and sale of farm, forms of deeds; rental of farm, terms of lease; boundaries and fences; overhanging trees; water rights and drainage; ways over the farm; rights in the highway; roadsides; live stock; dogs; game; trespass; theft; fires; insurance; employing laborers; liability of employer and employed; contracts; mortgages; notes; taxes; exchange, sale and purchase;

contagious diseases of live stock and crops. *Spring term, Senior year; 1 exercise per week. Elective by special arrangement.*

XVIII. Apiculture.—A study of the habits, care, breeding and management of the honey-bee, with practical work in the apiary. *Spring term, Senior year; 1 exercise per week. Elective by special arrangement.*

XIX. Agricultural Debate.—Discussion in the form of regular parliamentary debates upon leading agricultural questions. *Spring term, Senior year; 1 exercise per week. Elective.*

XX. Agricultural Experimentation.—A study of the objects, principles and methods of agricultural experimentation. Opportunity will be given for practical participation in the work of the experiment station to those students who arrange to continue this work through the experimental season. *Spring term, Senior year; 2 exercises per week. Elective by special arrangement.*

HORTICULTURE.

I. Principles of Horticulture.—A discussion of fundamental principles underlying horticultural operations in orchard, garden and greenhouse. *Fall term, Junior year; 2 recitations and laboratory period per week. Required of Agricultural students.*

II. Pomology.—Lectures and supplementary reading. Designed to give practical instruction in fruit-growing. *Winter term; 3 exercises per week. Elective.*

III. Vegetable-Gardening.—Methods of growing garden vegetables in the open ground and under glass. *Winter term; 3 exercises per week. Elective.*

IV. Landscape-Gardening.—The principles underlying landscape-gardening as a fine art, with discussion of the ornamentation of home-grounds, school-grounds, cemeteries, parks, highways and other public grounds. Lectures and supplementary reading. *Fall term; 3 exercises per week. Elective.*

V. Forestry.—General importance of forests, their influence on climate and water supply, methods of regeneration, and systems of forest management. Lectures and supplementary reading. *Spring term; 3 exercises per week. Elective.*

VI. Plant-Breeding.—A discussion of the development of plants under culture, with especial reference to problems of heredity, environment, variation, selection and evolution. Lectures and supplementary reading. Open to students who have had course I in botany. *Fall term; 2 exercises per week. Elective.*

VII. Horticultural Literature.—A seminary course designed to give familiarity with horticultural writings, ancient and modern. *By arrangement. Elective.*

VIII. Original Investigation.—For advanced students only. *By arrangement. Elective.*

ENGLISH.

*II. Rhetoric.—Text-book study and practical application of rhetorical principles in themes and exercises. *Throughout the Freshman year; 2 exercises per week. Required of all candidates for a degree.*

III. Critical study of certain prose masterpieces, with essays and various short papers. *Throughout the Sophomore year; 2 exercises per week. Required of all candidates for a degree.*

IV. General English Literature.—Topical study. Essays and collateral reading required. *Throughout the Junior year; 2 exercises per week. Required of all candidates for a degree.*

V. Special English Literature.—Study of special periods and authors. *Throughout the year; 3 exercises per week. Elective; open to students who have taken courses I–IV or their equivalent.*

VI. Special Work in Themes. *Throughout the year. Elec-*

*Course I, Elementary English, is given in the preparatory department.

tive; open to students who have taken courses I–IV or their equivalent.

GERMAN.

I. Elementary Course.—Grammar, dictation, conversation, reading of easy prose and poetry. *Fall and Winter terms, Freshman year; 5 exercises per week: Spring term; 3 exercises per week. Required of all candidates for a degree who do not offer French.*

II. Reading of intermediate texts, composition, conversation. *Fall term, Sophomore year; 3 exercises per week. Open to students who have taken course I or its equivalent, and required of all candidates for a degree who do not offer French.*

III. German Classics.—*Winter and Spring terms, Sophomore year; 3 exercises per week. Open to students who have taken courses I and II or their equivalent, and required of all candidates for a degree who do not offer French.*

IV. Goethe's Meisterwerke (Bernhardt).—*Fall term; 3 exercises per week. Elective; open to those who have taken courses I–III or their equivalent.*

V. Study of Schiller or Heine.—*Winter term; 3 exercises pe week. Elective; open to those who have taken courses I–III or thei equivalent.*

VI. Study of Freytag.—*Spring term; 3 exercises per wee Elective; open to those who have taken courses I–III or their equiv lent.*

VII. Scientific German.—Special work assigned by differe professors. *Elective; open to those who have taken courses I–I or their equivalent.*

FRENCH.

I. Elementary Course.—Grammar, dictation, conversatio reading of easy prose and poetry. *Fall and Winter terms, Fresh-*

man year; 5 exercises per week: Spring term, 3 exercises per week. Required of all Freshmen not taking German or Latin and not offering French for admission.

II. Reading of intermediate texts, composition, conversation.—*Throughout the Sophomore year; 3 exercises per week. Required of all candidates for a degree who do not offer German.*

III. French Classics.—*Throughout the year; 3 exercises per week. Elective; open to students who have taken courses I and II.*

IV. Lyrics of the Nineteenth Century.—*Fall term; 3 exercises per week. Elective; open to those who have taken courses I and II or their equivalent.*

V. Study of Victor Hugo.— *Winter term; 3 exercises per week. Elective; open to those who have taken courses I and II or their equivalent.*

VI. Scientific French.—Special work assigned by different professors. *Elective; open to those who have taken courses I and II or their equivalent.*

SPANISH.

I. Elementary Course.—Grammar, dictation, conversation, letter-writing, commercial forms, reading of easy prose and poetry. *Throughout the year; 3 exercises per week. Elective.*

II. Advanced Course.—Continuation of course I. Reading of more difficult texts. *Throughout the year; 3 exercises per week. Elective.*

LATIN.

*II. Cæsar or Selections from various Latin authors.—*Throughout the year; 3 exercises per week. Elective.*

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*Course I, Elementary Latin, is given in the preparatory department.

HISTORY AND POLITICAL SCIENCE.

*II. Constitutional and Political History of the United States. Based on Hart's Epochs of American History.—Lectures, recitations, readings and reports.—*Throughout the year; 3 exercises per week. Required of Juniors in the Biological course; elective for other students.*

III. English History.—This subject forms a part of the required work in Junior English. (See English IV.)

IV. Modern European History from the Beginning of the French Revolution.—*Throughout the year; 3 exercises per week. Elective for Juniors and Seniors.*

V. Science of Government.—Town, city, county, state and United States. Their origin, development and practices. Critical analysis of the Constitution of the United States. Lectures, recitations and reports. *Fall term, Senior year; 3 exercises per week. Required of all candidates for a degree.*

VI. Political Economy.—General principles. Based on Walker's Advanced Course.—Lectures, recitations, discussions, readings, essays. Consideration of present day problems. *Winter and Spring terms, Senior year; 3 exercises per week. Required of all candidates for a degree.*

MATHEMATICS.

†IV. College Algebra (Taylor).—The theory of limits; differentiation; development of functions in series; permutations and combinations; determinants. *Fall term, Freshman year; 4 exercises per week. Required of all candidates for a degree.*

V. Plane Trigonometry (Bowser).—The derivation of the fundamental formulas; logarithms; the solution of right and obliqu-

* Course I, General History, is given in the preparatory department.

† Courses I, II and III are given in the preparatory department.

triangles; practical problems. *Winter term, Freshman year; 3 exercises per week. Required of all candidates for a degree.*

VI. Solid Geometry (Phillips and Fisher).—Lines and planes in space; diedral angles; polyhedral angles; polyhedrons; the cylinder, cone and sphere; measurement of the cylinder, cone and sphere; numerical examples and original demonstrations. *Spring term, Freshman year; 3 exercises per week. Required of all candidates for a degree.*

VII. Analytical Geometry (Loney).—Coördinate systems; the point; the line; relation between different coördinate systems; the equation of the first degree, the straight line; the equation of the second degree, the conic sections; higher plane curves. *Throughout the Sophomore year; 3 exercises per week. Required of students in the Mechanical and Electrical Engineering courses. Elective for other students.*

VIII. Calculus (Osborne).—The differentiation of algebraic, trigonometric, logarithmic, exponential and anti-trigonometric functions. Integration of fundamental forms; definite integrals; applications to geometry and mechanics; successive differentiation; successive integration with applications; evaluation of indeterminate forms; the development of functions in series; maxima and minima; change of the independent variable; integration of rational fractions; integration by rationalization; integration by parts and by series; curve tracing. *Throughout the Junior year; 3 exercises per week. Required of students in the Mechanical and Electrical Engineering courses. Elective for other students.*

IX. Differential Equations.—*First half the Senior year; 3 exercises per week. Elective for students who have completed course VIII.*

X. Analytical Mechanics.—*Second half the Senior year; 3 exercises per week. Elective for students who have completed course VIII.*

XI. Courses in synthetic geometry, projective geometry, theory of equations, modern analytical geometry, theory of functions, may be arranged for by consultation with the head of the department.

CIVIL ENGINEERING.

I. Surveying.—Theory and practice; problems in the use and adjustment of modern surveying instruments; land surveying; computations and plotting. *Fall term; 1 classroom exercise, 2 exercises of three hours each of field-work per week. Elective.*

II. Land Drainage (See Agriculture III).—Sources of water; necessity of drainage; kinds of drains; action of drains; planning systems of drainage; drain tiles; construction and care of drains. *Fall term, Sophomore year; 2 exercises per week for one-half the term. Required of Agricultural students.*

III. Surveying.—Land, city, topographic and hydrographic. Theory and practice. *Spring term; 1 classroom exercise, 2 exercises of field-work per week. Required of Sophomores in the Agricultural course. Elective for students who have taken course I or II.*

IV. Highways and Pavements.—Theory of the location and construction of earth, gravel and broken-stone roads and paved streets. *Fall term; 3 classroom exercises, 1 exercise of field-work per week. Elective.*

V. Location of Roads and Railroads.—Field work; reconnaissance; preliminary survey; location survey; slope-staking; computation of earth works. *Fall term; 2 exercises of three hours each. Elective for those who have completed courses III and VI.*

VI. Topographical Drawing and Lettering (See Mechanics VI).—*Winter term; 1 exercise of three hours per week. Required of Agricultural Sophomores. Elective.*

VII. Elements of Geodesy.—Measurement of base line; triangulation; adjustment of triangles and quadrilaterals; mapping; computations; problems in finding latitude and longitude. *Spring term. Elective to those who have completed courses I V and V.*

HOME SANITATION.

I. A course of lectures and recitations on plumbing, water-supply and sewerage systems, heating and ventilation, accompanied by laboratory work, given in alternate years with refrigeration and cold storage. *Throughout the Senior year. Lectures, 3 exercises per week, Fall term; lectures, 2 exercises, and laboratory work, 1 exercise, Winter and Spring terms. Required of students in the Electrical Engineering course. Elective; open to Juniors and Seniors in other courses.*

MECHANICS.

I. Mechanical Drawing.—Elementary principles, use of tools, inking in, geometrical drawing. *Winter and Spring terms, Freshman year. Winter term: 2 periods of 2 hours each per week required for a degree in Mechanical Engineering; 1 period of 2 hours per week required for a degree in Electrical Engineering. Spring term: 2 periods of 2 hours each per week required for a degree in Mechanical and Electrical Engineering; 1 period of 2 hours per week required for a degree in Agriculture. Elective for other students.*

II. Mechanical Drawing.—Screw threads, bolts and nuts, shade lines, line shading. *Winter term, Sophomore year; 3 periods of 2 hours each per week. Required for a degree in Mechanical Engineering.*

III. Mechanical Drawing.—Descriptive geometry. *Spring term, Sophomore year; 3 periods of 2 hours each per week. Required for a degree in Mechanical and Electrical Engineering.*

IV. Mechanical Drawing.—Machine details and parts, tracing,

blue printing. *Fall term, Junior year; 3 periods of 2 hours each per week. Required for a degree in Mechanical Engineering.*

V. Mechanical Drawing.—Elements of machine design. *Winter term, Junior year; 3 periods of 2 hours each per week. Required for a degree in Mechanical Engineering.*

VI. Mechanical Drawing.—Practical machine design. *Fall term, Senior year; 2 periods of 2 hours each per week. Required for a degree in Mechanical Engineering.*

VII. Mechanical Drawing.—Elements of topographical drawing as introductory to land surveying. *Winter term, Sophomore year; 1 period of 2 hours per week. Required for a degree in Agriculture.*

VIII. Wood-working.—Use of tools, bench work and carpentering. *Winter term, Freshman year; 2 exercises of 3 hours each per week. Required for a degree in Mechanical and Electrical Engineering and Agriculture.*

IX. Wood-working.—Wood-turning and pattern-making. *Spring term, Freshman year; 3 exercises of 3 hours each per week. Required for a degree in Mechanical and Electrical Engineering.*

X. Shopwork.—Foundry practice, principles of moulding and casting. *Fall term, Sophomore year; 2 exercises of 2 hours each per week. Required for a degree in Mechanical Engineering.*

XI. Shopwork.—Forging, drawing, bending, welding and tool dressing. *Fall term, Junior year; 2 exercises of 3 hours each per week. Required for a degree in Mechanical Engineering.*

XII. Shopwork.—Forging. Short course. *Spring term, Freshman year; 1 exercise of 3 hours each per week. Required for a degree in Agriculture.*

XIII. Machine-shop Practice.— *Winter and Spring terms, Junior year; 2 exercises of 3 hours each per week. Required for a degree in Mechanical and Electrical Engineering.*

XIV. Wood-carving.—Care and use of tools, geometrical motives, diaper patterns, incised carving, flat and curved surface carving, historic ornament, low relief and high relief. *1 exercise of 3 hours per week. Elective.*

XV. Steam Boilers.—Types, construction, strength, uses and management. *Fall term, Junior year; 2 exercises per week. Required for a degree in Mechanical and Electrical Engineering.*

XVI. Thermodynamics.—As directly applied to the steam engine. Simple and compound engines. *Winter term, Junior year; 4 exercises per week. Required for a degree in Mechanical Engineering.*

XVII. Steam Engineering.—Valve gears, regulators, condensers, power plants, tests. *Spring term, Junior year; 3 exercises per week. Required for a degree in Mechanical and Electrical Engineering.*

XVIII. Strength of Materials.—Wood, iron, steel, alloys, brick, stone and cements. *Spring term, Junior year; 3 exercises and 1 laboratory exercise of 2 hours per week. Required for a degree in Mechanical Engineering.*

XIX. Theoretical and Applied Mechanics.—Bodies at rest and in motion, friction of rest and motion, energy, work and power. *Fall term, Senior year; 4 exercises per week. Required for a degree in Mechanical Engineering.*

XX. Graphic Statics of Structures and Machines.— *Winter term, Senior year; 4 exercises per week. Required for a degree in Mechanical Engineering.*

XXI. Hydraulics.—Flow of water through pipes, orifices and sewers. Measurement of flow of rivers and streams. Water

power and water supply. *Spring term, Senior year; 4 exercises per week. Required for a degree in Mechanical and Electrical Engineering.*

XXII. Engineering Laboratory.—Physical tests of materials used in industries and in construction. Tests of machines and apparatus. *Throughout the Senior year; 2 lectures and 1 laboratory exercise per week. Required for a degree in Mechanical Engineering.*

XXIII. Mill Construction.—Lectures upon the structural development and design of shops and mills. *Fall term, Senior year; 3 exercises per week. Required for a degree in Mechanical and Electrical Engineering.*

XXIV. Metallurgy.—Cast iron, wrought iron, steel, copper, tin, lead, zinc and alloys. *Winter term, Senior year; 3 exercises per week. Required for a degree in Mechanical Engineering.*

XXV. Textile Machinery.—Lectures upon types of machinery and processes for the manufacture of cotton and woolen goods. *Spring term, Senior year; 3 exercises per week. Required for a degree in Mechanical Engineering.*

ELECTRICAL ENGINEERING.

I. Electrical Measurements and Electrical Machinery.—A course of lectures and laboratory work upon electrical measurements, testing of instruments, dynamos and motors. *Throughout the Junior year;* lectures, *1 exercise per week;* laboratory work, *2 exercises per week. Required of students in the Electrical and Mechanical Engineering courses; elective for other students who have taken Physics II.*

II. Applied Electricity.—A course of lectures, accompanied by laboratory work upon modern practical applications of electricity. *Throughout the Senior year;* lectures, *1 exercise per week;* laboratory work, *2 exercises per week. Required of students in*

THE STUDIO.

Electrical Engineering course; and elective for other students who have taken course I.

DRAWING AND MODELING.

I. Freehand Drawing.—Drawing in charcoal from objects. Memory sketches required. *Fall term, Freshman year; 1 exercise of 2 hours per week. Required of all candidates for a degree.*

II. Drawing in Charcoal from Still Life and the Cast.—*Spring term, Freshman year; 3 exercises of 2 hours per week. Required of students in Biological course; elective for students in Chemical course.*

III. Drawing in Charcoal from Still Life and the Cast.—*Fall term, Sophomore year; 3 exercises of 2 hours per week. Elective; open to students in the Biological course who have taken course I. Spring term, Sophomore year; open to students in Biological course.*

IV. Modeling.—*Fall term, Sophomore year; 3 exercises of 2 hours per week. Elective; open to students in Chemical and Biological courses.*

STENOGRAPHY.

I. Elementary Course.—Instruction in principles; dictation. *Throughout the year; 4 exercises per week. Elective.*

II. Advanced Course.—Dictation, including the following: business letters, legal documents, terms used, deeds, wills, mortgages, contracts, declarations, etc.; hints useful in office work; general dictation. *Throughout the year; 3 periods per week. Elective.*

THE COURSES OF STUDY LEADING TO A DEGREE.

FRESHMAN.

Fall Term.

Physiography II*	3	English II	2
Physics I	3	German I	5
Mathematics IV	4	Freehand Drawing I	1

	Agriculture.	Mechanical Engineering.	Electrical Engineering.	Chemistry.	Biology.
Winter Term.	Mathematics V 3	Mathematics V 3	Mathematics V 3	Mathematics V 3	Mathematics V 3
	Physics I 3	Physics I 3	Physics I 3	Physics I 3	Physics I 3
	Physiography II 1	Physiography II 1	Physiography II 1	Physiography II 1	Physiography II 1
	English II 2	English II 2	English II 2	English II 2	English II 2
	German I 5	German I 5	German I 5	German I 5	German I 5
	Botany I 3	Mechanics VIII 2	Mechanics VIII 2	Botany I 3	Botany I 3
	Mechanics VIII 2	Mechanics I 2	Mechanics I 1	Military Drill.	Military Drill.
	Military Drill.	Military Drill.	Military Drill.		
Spring Term.	Mathematics VI 3	Mathematics VI 3	Mathematics VI 3	Mathematics VI 3	Mathematics VI 3
	Physics I 3	Physics I 3	Physics I 3	Physics I 3	Physics I 3
	English II 2	English II 2	English II 2	English II 2	English II 2
	German I 3	German I 3	German I 3	German I 3	German I 3
	Mechanics XII 1	Mechanics I 2	Mechanics I 2	Botany I 3	Botany I 3
	Botany I 3	Mechanics IX 3	Mechanics IX 3	Military Drill.	Freehand Drawing II 3
	Agriculture I 2	Military Drill.	Military Drill.	ELECTIVES. (*One to be chosen.*)	Military Drill.
	Military Drill.			Freehand Drawing II 3	
				Mechanics I 3	

* The Roman numerals refer to the course numbers; see pp. 48-69.

LIPPITT HALL.

Students wishing to enter the second-year class in this school will be examined in geography and United States history, advanced arithmetic, algebra to quadratics, and English. In 1901 and 1902 the English requirements will cover Shakespeare's Merchant of Venice and Macbeth; Pope's Iliad, books I, VI, XXII, XXIV; Addison's The Sir Roger de Coverley Papers; Scott's Ivanhoe; Cooper's The Last of the Mohicans; Lowell's The Vision of Sir Launfal; Coleridge's The Ancient Mariner.

Any mature person who can satisfy the examining committee that he has the capacity to do the work, may enter on probation and take the examination later.

COURSE OF STUDY.

FALL TERM.

First Year Preparatory.	Hrs. per week.	Second Year Preparatory.	Hrs. per week.
Advanced Arithmetic	5	Algebra	4
English	6	Geometry	3
General History	3	English	3
Physiography	2	Latin	5

Electives.—Freehand Drawing, Carpentering, Practical Mechanics, Agriculture, Stenography.

WINTER TERM.

Algebra	5	Algebra	4
English	5	Geometry	3
General History	3	English	3
Physics	3	Latin	5
Physiography	1		

Electives.—Carpentering, Wood-carving, Practical Mechanics, Agriculture, Stenography.

SPRING TERM.

Algebra	5	Algebra	4
English	5	Geometry	3
General History	3	English	3
Physics	3	Latin	5

Electives.—Carpentering, Agriculture, Practical Mechanics, Freehand Drawing, Stenography.

Students are required to elect one of the courses offered under electives, which their previous training has fitted them to take. While the course of study is graded in two classes, designated as the First and Second Year Preparatory, a mature student may take such studies from both grades as are essential for preparation for the college.

Students desiring special work in *agriculture* or mechanics, who are not prepared to enter the regular courses leading to a degree, may combine with work in the preparatory department such courses in agriculture and mechanics as may fit their especial needs. The successful completion of such a special course will lead to a certificate covering the work completed.

GENERAL INFORMATION.

Information with regard to the calendar of the school, the cost of living, regulations, etc., may be found on the first twenty-five pages of this catalogue. For other information apply to

M. H. TYLER, *Master*,

KINGSTON, R. I.

THE SCHOOL OF CORRESPONDENCE.

Not all who would like to do so can attend college. Yet the benefits to be derived therefrom need not be entirely lost. Education by correspondence is making rapid strides. While it can never take the place of actual attendance at an educational institution, it may be the source of much benefit to the one who pursues it faithfully, earnestly and persistently.

The School of Correspondence is designed to help those who cannot attend the college classes. Its aim is to upbuild the farm-home. It will assist the father or the son in a study of the problems which directly bear upon the work of the farm. It will assist the mother or the daughter in the study of nature, science or literature. Through the Nature Guard it will stimulate the young people to see and appreciate more of the things of out-door life. It tries to bring to the farm-home some of the best things of the educational world and of college life. It does not undertake to outline and carry through a definite course of instruction, and the work which it offers is in no sense a substitute for a college education. But it does undertake to assist the student to a better understanding of the particular subjects in which he is most directly interested. Questions are forwarded as the work progresses and the replies discussed when necessary. Full opportunity is also afforded for questions on the part of the student.

No fees are exacted, the only expense being for the books used and the postage required in correspondence. Books are obtained at reduced rates from The Orange Judd Company, 52 Lafayette Place, N. Y., upon presentation of the certificate of enrollment.

Address, SCHOOL OF CORRESPONDENCE,

RHODE ISLAND COLLEGE,

KINGSTON, R. I.

THE NATURE GUARD.

The Nature Guard is an organization of young people formed for the purpose of awakening in its members a livelier interest in the things of out-door life. Its primal object is to stimulate observation and to furnish a key to the coyly hidden secrets of nature, while underneath and behind it all is the desire to instill a love of nature and country life.

The boys and girls in one school, or in one room, if the school is graded, form themselves into a band and elect officers, which are a Spy and a Guardian. Each band fixes its own times of meeting and adopts its own methods of procedure. Enrollment cards, to be signed and returned, are furnished from headquarters. Printed leaflets are mailed monthly during the school-year, and monthly reports giving observations of their own are asked from the members.

The following bands, aggregating a membership of over six hundred, were enrolled during the school-year of 1899–1900, the first year of its organization:

Agassiz Band, Woonsocket, R. I. Dorothy W. Caldwell, Spy; Ralph Green, Guardian.

Altus Band, Altus, Pa. Ethel W. Smith, Spy; Florence A. Watkins, Guardian.

Argus Band, Woonsocket, R. I. William Sharkey, Spy; Florence Mailloux, Guardian.

Bluebird Band, Pine Hill, R. I. Lottie M. Green, Spy; Anna Kenyon, Guardian.

Bright-eyed Band, Westerly, R. I. Joseph Marzoli, Spy; Grace E. Stillman, Guardian.

Buckfield Nature Band, Buckfield, Me. Harry Turner, Spy; Cleora M. De Coster, Guardian.

Clover-Leaf Band, Exeter, R. I. Bessie M. Brewer, Spy; Cleveland Joslin, Guardian.

Clover-Leaf Band, Mansfield, Pa. John Doane, Spy; Archie L. Ely, Guardian.

Daisy Band, Providence, R. I. Ruth Wells, Spy; Nina Easton, Guardian.

Daisy Band, Phenix, R. I. Robert M. Easdon, Spy; Amelia B. Clarke, Guardian.

Family Band, Peru, Me. Mrs. M. V. Hall, Mother.

Forest Band, Westerly, R. I. Alexander Kenneth, Spy; Louise Hiscox, Guardian.

Harris Avenue Band, River Point, R. I. Idwin Wood, Spy; Laura Hudson, Guardian.

Laurel Lake Band, Kingston, R. I. Ethel Tucker, Spy; Reuben Brigham, Guardian.

Look-about-You Club, Providence, R. I. Edgar Sellew, Spy; Grace Peckham, Guardian.

Lookout Band, Tiverton, R. I. Rodman C. Hart, Spy; Helen R. Simmons, Guardian.

Mary Dickerson Band, Providence, R. I. Frank Grady, Spy; Daniel McDonald, Guardian.

Mayflower Band, Madison, Conn. Harry N. D. Kelsey, Spy; Clarence Bassett, Guardian.

Mother Nature's Students, Westerly, R. I. Joseph Corey, Spy; Genevieve Burdick, Guardian.

Nature Observers, Providence, R. I. Walter H. Freeman, Spy; Bernice L. Carey, Guardian.

Pansy Band, Hillsdale, R. I. Arthur L. Cooke, Spy; Sadie Marshall, Guardian.

Sharp-Eyes Band, Providence, R. I.

Sons of Nature, Woonsocket, R. I. Leland A. Jenckes, Spy; Elton Kettlety, Guardian.

Sylvan Band, Sylvania, Pa. Eugenie Pierce, Guardian.

Washington Band, North Scituate, R. I. Frances R. Page, Spy; Eliza B. Knowlton, Guardian.

Waterton Band, Providence, R. I.

Wide-Awake Band, Phenix, R. I. Winfred E. Hoxsie, Spy; Mary Canavan, Guardian.

Wide-Awake Band, Hope, R. I. William H. Jordan, Spy; Nettie Brayton, Guardian.

Wide-Awake Band, Yantic, Conn. Ella P. Peck, Spy; Elsie K Maine, Guardian.

Woodland Band, Woonsocket, R. I. Theo. Crosby, Spy; Newton G. Chase, Guardian.

Young Observers of Nature, Providence, R. I. William P. Lynch Spy; Lizzie Hamilton, Guardian.

Address, THE NATURE GUARD,

RHODE ISLAND COLLEGE,

KINGSTON, R. I.

RELIGIOUS ORGANIZATIONS.

Young Men's Christian Association.

R. W. PITKIN.....President.
E. J. CRANDALL.....Vice-President.
H. D. SMITH.....Cor. Secretary. / Rec. Secretary.
L. G. K. CLARNER.....Treasurer.

Young Women's Christian Union.

EDITH L. KEEFER.....President.
ANNA B. SHERMAN.....Vice-President.
EDNA E. DAWLEY.....Secretary.
LAURA M. COOKE.....Treasurer.

ALUMNI ASSOCIATION.

GEORGE E. ADAMS, President.

GEORGE A. RODMAN, Secretary, Woonsocket, R. I.

J. F. KNOWLES, Treasurer, Kingston, R. I.

GRADUATES.

1894.

Adams, George Edward, Agr.....Kingston, R. I.
Assistant Horticulturist R. I. Agr. Experiment Station.

Ammonds, George Clarence, Mech ....Kingston, "
Railroad Mail Clerk.

Arnold, Chapin Trafford, Agr.....Providence, "
Electrician.

Burlingame, George Washington, Agr.....Chepachet, "
Teacher.

Clark, Helen May.....North Brookfield, Mass.
Teacher.

Knowles, John Franklin, Mech.....Kingston, R. I.
Assistant in Woodworking Dept., R. I. C. A. & M. A.

Madison, Warren Brown, Agr.....East Greenwich, "
Horticulturist.

Mathewson, Ernest Hoxsie, Mech.....Keysville, Va.
Farmer.

Peckham, Reuben Wallace, Agr.....South Portsmouth, R. I.
Art Student.

Rathbun, William Sherman, Agr.....Wakefield, "
Veterinarian.

Rodman, George Albert, Mech.....Woonsocket, "
Assistant Bridge Dept., N. Y., N. H. & Hartford R. R.

Sargent, Charles Lawrence, Agr.....Newark, N. J.
Ph. D., University of Pennsylvania. Chemist.

Slocum, Samuel Watson, Agr ..... Westerly, R. I.
Carpenter.

Spears, John Barden, Agr ..... Foster Centre, "
Teacher.

Sweet, Stephen Adelbert, Agr ..... Slocums, "
Farmer.

Tucker, George Mason, Agr..... ..... Ojitlan, Mexico.
Ph. D., University of Göttingen, Germany.
Manager of Coffee and Rubber Plantation.

Wilber, Robert Arthur, Mech..... East Greenwich, R. I.
Express Agent.

1895.

Albro, Lester Franklin, Agr ..... Middletown, R. I.
Student in Singing.

Burdick, Howland, Agr..... Kingston, "
Farm Superintendent, R. I. C. A. & M. A.

Clarke, Charles Sherman, Mech ..... Jamestown, "
Chief Engineer on Steamboat.

Eldred, Mabel DeWitt..... ..... Kingston, "
Instructor in Drawing, R. I. C. A. & M. A.

Hammond, John Edward, Agr..... Jamestown, "
Farmer.

Oatley, Lincoln Nathan, Mech..... Wakefield, "
Carpenter and Contractor.

Scott, Arthur Curtis, Mech..... Kingston, "
Professor of Physics, R. I. C. A. & M. A.

Tefft, Jesse Cottrell, Mech..... ..... Jamestown, "
Purser on Steamboat.

Winsor, Byron Edgar, Mech..... Summit, "
Farmer and Teacher.

1896.

Brown, May (Mrs. Charles A. White) ... Narragansett Pier, R. I.
Greenman, Adelaide Maria.....Narragansett Pier, "
Student and Teacher.

Kenyon, Albert Lewis, Mech.....Providence, "
Silver Spring Bleaching and Dyeing Co.

Moore, Nathan Lewis Cass, Agr.....East Providence, "
Gardener.

Tabor, Edgar Francis, Mech.....Providence, "
Silver Spring Bleaching and Dyeing Co.

Williams, James Emerson, Agr..... ....Summit, "
Farmer and Teacher.

1897.

Carmichael, Welcome Sands, Sci .....Providence, R. I.
Bookkeeper.

Case, Herbert Edwards Brown, Mech.....Pawtucket, "
Student, Moody Bible Institute, Chicago.

Grinnell, Archie Franklin, Mech.....Providence, "
Draughtsman.

Hanson, Gertude Maie, Sci.....Peace Dale, "
Teacher.

Hoxsie, Bessie Bailey (Mrs. E. F. Rueckert).....Providence, "
Larkin, Jessie Louise, Sci..... .....Westerly, "
Stenographer.

Kenyon, Charles Franklin, Mech.....Shannock, "
Kenyon, Albert Prentice, Mech..... .....Ashaway, "
Bookkeeper.

Marsland, Louis Herbert, Mech..... .....Bridgton, N. J.
Teacher.

Tefft, Eliza Alice, Sci..... .....Allenton, R. I.
Teacher.

Thomas, Irving, Mech.....Wakefield, R. I.
In Peace Dale Woolen Mills.

1898.

Arnold, Sarah Estelle, Sci.....Providence, R. I.
Clerk, Printing Department, Livermore & Knight.

Barber, George Washington, Agr.....Shannock, "
Farmer.

Cargill, Edna Maria, Sci.....Abbott Run, "
Student, Cornell University.

Case, John Peter, Agr.....Cleveland, Ohio.
With Brown Hoisting and Conveying Co.

Clarke, William Case, Sci.....Wakefield, R. I.
In Business.

Congdon, Henry Augustus, Mech.....Kingston, "
Farmer.

Flagg, Martha Rebecca, Sci.....Kingston, "

Harley, William Ferguson, Agr.....Pawtucket, "
Clerk in Store.

Turner, Harriette Florence, Sci.....Florence, Mass.
Instructor in Domestic Science.

Wilson, Grace Ellen, Sci.....Allenton, R. I.

1899.

Bosworth, Alfred Willson, Sci.....Kingston, R. I.
Assistant Chemist, R. I. Agr. Experiment Station.

Brooks, Ralph Ordway, Sci.....Providence, "
Draughtsman.

George, Lillian Mabelle, Sci.....Kingston, "
Librarian, R. I. C. A. & M. A.

Harvey, Mildred Wayne, Sci.....Kingston, "
Stenographer.

Kenyon, Blydon Ellery, Agr.....Chicago, Ill.
Electrician.

Knowles, Carroll, Mech .....Kingston, R. I.
Assistant in Mechanics, R. I. C. A. & M. A.

Knowles, Harry, Sci .....Point Judith, "
Journalist.

Ladd, Merrill Augustus, Mech...U. S. Army Transport "Buford."
Chief Electrician.

Morrison, Clifford Brewster, Sci.....Providence, R. I.
City Sewerage Department.

Owen, William Frazier, Mech.....Albany, N. Y.
Student.

Payne, Ebenezer, Sci.....Ann Arbor, Mich.
Student, University of Michigan.

Phillips, Walter Clark, Mech .....Lafayette, R. I.
Student, Brown University.

Reynolds, Robert Spink, Mech .....Providence, "
In City Engineer's Office.

Rice, Minnie Elizabeth, Sci.....Plainville, Mass.
Teacher.

Sherman, Abbie Gertrude (Mrs. Benj. A. Barton)..Kingston, R. I.
Sherman, George Albert, Mech.....Providence "
Draughtsman.

Thompson, Sally Rodman, Sci.....Wakefield, "

1900.

Brightman, Henry Maxson, Mech.....Buffalo, N. Y
With Buffalo Forge and Blower Co.

Cross, Charles Clark, Mech..... ....Providence, R. I.
With Nicholson File Co.

Eldred, John Raleigh, Mech.....Providence, "
With Nicholson File Co.

Fison, Gertrude Sarah, Sci.....Northampton, Mass.

Assistant Librarian.

Goddard, Edith, Sci.....Brockton, "

Student in Bridgewater Normal School.

Kenyon, Amos Langworthy, Agr.....Wood River Junction, R. I.

Farmer.

Munro, Arthur Earle, Sci.....Quonochontaug, "

Student in Brown University.

Soule, Ralph Nelson, Sci.....Providence, "

Electrician.

Steere, Anthony Enoch, Mech.....Providence, "

With Nicholson File Co.

Stillman, Lenora Estelle, Sci.....Niantic, "

Teacher.

Tucker, Bertha Douglass, Sci.....Swansea Centre, Mass.

Dressmaker.

Wheeler, Charles Noyes, Sci.....Westerly, R. I.

Clerk in Store.

Wilson, Joseph Robert, Mech.....Belleville, "

In Woolen Mills.

STUDENTS.

Post Graduates.

George, Lillian Mabelle ....Amesbury, Ma
Harvey, Mildred Wayne.....Allenton, R.
Kenyon, Blydon Ellery..... .....Wood River Junction,

Graduates of 1900.

Brightman, Henry Maxson, Sci.....Westerly, R.
Cross, Charles Clark, Mech.....Narragansett Pier,
Eldred, John Raleigh, Mech..... .....Kingston,
Fison, Gertrude Sarah, Sci..... .....Peace Dale,
Fry, John Joseph, Sci.....East Greenwich,
Goddard, Edith, Sci.....Brockton, Ma
Kenyon, Amos Langworthy, Agr .... Wood River Junction, R.
Munro, Arthur Earle, Sci.....Quonochontaug, R.
Soule, Ralph Nelson, Sci.....East Greenwich, "
Steere, Anthony Enoch, Mech.....Chepachet, "
Stillman, Lenora Estelle, Sci ....Kenyon, "
Tucker, Bertha Douglass, Sci.....Swansea Centre, Mas
Wheeler, Charles Noyes, Sci.....Shannock, R.
Wilson, Joseph Robert, Mech. .....Allenton, "

Seniors.

Briggs, Nellie Albertine, Sci.....Kingston, R.
Burgess, Charles Stuart, Mech.....Providence, "
Clarner, Louis George Karl, Jr., Sci.....Arnold's Mills, "
Dawley, Edna Ethel, Sci .....Kenyon,

Denico, Arthur Albertus, Sci.....Narragansett Pier, R. I.
James, Ruth Hortense, Sci.....Kenyon, "
Sherman, Anna Brown, Sci.....Kingston, "
Sherman, Elizabeth Agnes, Sci.....West Kingston, "
Smith, Howard Dexter, Sci ..... North Scituate, "
Steere, Roena Hoxsie, Sci.....Providence, "
Wilby, John, Sci .....Kingston, "

Juniors.

Clarke, Latham, Biol.....West Kingston, R. I.
Cornell, Bailey Jordan, Eng.....Croton-on-Hudson, N. Y.
Ferry, Oliver Needham, Mech.....Palmer, Mass.
Maxson, Ralph Nelson, Chem .....Westerly, R. I.
Pitkin, Robert William, Mech .....Providence, "
Reynolds, Arthur Leone, El. Eng.....Athol, Mass.

Sophomores.

Barber, Kate Grace, Biol.....Carolina, R. I.
Bell, Louis Frederick, Jr.....Wakefield, "
Brennan, Thomas, Biol .....Peace Dale, "
Church, Albert Sumner, Mech.....Narragansett Pier, "
Clarner, John Adams, Mech.....Pawtucket, "
Cooke, Laura Marion, Biol.....Narragansett Pier, "
Crandall, Daniel Alva .....Canonchet, "
Crandall, Elverton Jewett, El. Eng.....Adamsville, "
Cross, Frederick Lawrence, El. Eng .....Narragansett Pier, "
Duffy, John Edward, Biol.....Riverpoint, "
Goddard, Warren, Jr., Mech.....Brockton, Mass.
Hoxsie, Fred Clifford, Biol.....Woodville, R. I.
Hoxsie, Willard Munroe, Biol.....Quonochontaug, "
Keefer, Edith L., Biol .....Oceanus, N. Y.
Kent, Raymond Warren, Mech .....Woonsocket, R. I.
Kenyon, Charles Franklin, El. Eng.....Point Judith, "
Loomis, William, Mech.....Glastonbury, Conn.

Peckham, Arthur Noyes, Biol.....Kingston, R
Quinn, Mary Louise, Biol..... .....Wakefield,
Rice, George Henry..... .....Wickford,
Rodman, Edith Stoughtenburg, Biol.....Kingston,
Tefft, Ernest Allen, El. Eng.....Hope Valley,
Wheeler, Everett Eugene.....Shannock,
White, Mabelle Frances, Biol..... ....Amesbury, Ma
Whitmore, Charles Ely, El. Eng.....Holyoke,
Wood, John Amos..... ....Hope Valley, R

Freshmen.

Alomá, Tiberio Garcia..... ...Cienfuegos, Cu
Ballou, Willard Alger .....Lawrence, Ma
Briggs, Myron Watson.....Kingston, R
Clancy, John.....Mystic, Co
Rodman, Walter Sheldon .....Wakefield, R
Wells, Thomas Perry.....Kingston,

Preparatory Department.

Adams, Harry Ernest.....Providence, R
Allen, Fred Ray..... .....Hills Grove,
Barber, Ernest Clark..... .....Shannock,
Barber, Frank Oscar..... Mystic, Co
Brigham, Reuben .....Kingston, R
Brown, Cora..... ... .West Kingston,
Brown, Martha Browning.....Kingston,
Calder, John Alexander..... .....Westerly,
Carley, Frederick James.....Tewksbury, Ma
Carpenter, Hortense Blakesley.....Kingston, R
Champlin, Sarah Elizabeth..... .....Kingston,
Clark, Rollin Grover.....Narragansett Pier,
Davis, Augustus Boss.....Kingston,
Dawley, Percy William.....Kenyon,
Donath, Francis Edward.....Pawtucket,

n, Joseph.....Narragansett Pier, R. I.
, Hugh Jean.....Peace Dale, "
n, Jean..... Gilman, Me.
ɜll, George Francis.....Narragansett Pier, R. I.
ll, Nellie Armstrong.....Wakefield, "
, Horacio.....Habana, Cuba.
e, Katharine Mertie.....Woodville, R. I.
ɔnald, James Merton.....Wood River Junction, "
ı, Francesco.....Cartago, Costa Rica.
:thy, Charles Henry.....Central Falls, R. I.
, Henry Francis.....Providence, "
y, James Lee.....Narragansett Pier, "
ls, Howard Martin.....Kenyon, "
r, Edward Thomas.....Peace Dale, "
ns, Robert Bruce.....Auburn, "
ns, William Wallace.....Auburn, "
eld, James Frederick.....Bristol, "
, Cora Edna.....Wickford, "
, Neva Maude.....Wickford, "
n, Percy Wilfred.....Kingston, "
, Bert Cleveland.....Tarkiln, "
, Thomas Albert.....Providence, "
r, Ethel Aldrich.....Kingston, "
r, Hannah Mahala.....West Kingston, "
a, Carlos.....Comerio, Porto Rico.
n, Walter Irving.....Wakefield, R. I.
r, Sydney Brown.....Greenville, "
t, Lola Rodman.....Wakefield, "

Specials.

l, James Edward.....Abbott Run, R. I.
Emery Perkins.....Warren, "
John Gardiner.....Narragansett Pier, "
n, John Garfield.....New York, N. Y.

Reynolds, Walter Florus.....Brockton, Mass
Sherman, Robert Joseph.....Usquepaugh, R. I
Wightman, Levi Eugene.....South Scituate, "
Wilcox, Charles William.....Kingston, "

Specials in Wood-Carving.

Barton, Mrs. Benjamin A.....Kingston, R. I
Bosworth, Mrs. Ellen.....Kingston, "
Brayton, Mrs. Charles A.....Kingston, "
Brown, Mary J.....Kingston, "
Clark, Mrs. George C.....Shannock, "
Dockray, Mary.....Peace Dale, "
Greenman, Mrs. A. A.....Kingston, "
Rodman, Lillie.....Kingston, "

Poultry School.

Andrews, Fred Matthias.....Pompey, N. Y
Brayman, Benjamin Lewis.....Wickford, R.
Coggeshall, Dexter Elton.....Everett, Mas
Currens, Robert Clifford.....Kearney, Ne
Dornacher, Sebastian John.....West Springfield, Mas
Flagg, Caleb Belcher.....Kingston, R.
Gifford, Harold Green.....Barrington, "
Harris, William Marchant.....West Kingston, "
Hodges, Mrs. Leonie Rose.....New York, N. Y
Hope, Harry Vincent.....Kingston, R. I
Jones, Frank Steward.....Chicago, Il
Marshall, John.....Fleming, N. Y
Marshall, Margaret Elizabeth.....Slocumville, R. I
Murray, Nelson Shepard.....Little Falls, N. Y
Oatley, George Nichols.....Allenton, R. I
Partelow, Earle Dexter.....Wakefield, "
Soenke, Carl Herman.....Walcott, L
Stackus, Washington Graham.....Southington, Con

Stearns, Ralph Waldo ..... Jamestown, R. I.
Stoneburn, Frederick H..... Morristown, N. Y.
Taylor, Thomas House, Jr ..... Plainfield, N. J.
Thebaud, Mathilde M..... New York City, N. Y.
Tyler, Frankling Eugene..... Greenville, Me.

Horticulture School.

Flagg, Caleb Belcher..... Kingston, R. I.
Gifford, Harold Green ..... Barrington, "
Greenman, Mrs. Mary Easton..... Kingston, "
Hodges, Mrs. Leonie Rose..... New York, N. Y.
Nalbandian, Krikor G..... Providence, R. I.
Stackus, Washington Graham..... Southington, Conn.

Nature-Study School.

Allen, Harriet A..... Woonsocket, R. I.
Battey, Thomas J..... Providence, "
Brown, Charlotte B..... Providence, "
Brown, Ellen L..... Providence, "
Brown, Ellen P..... Providence, "
Brown, Mary Louise..... Providence, "
Chadwick, Annie H..... Fall River, Mass.
Chase, Josephine P..... Woonsocket, R. I.
Clark, Agnes E ..... Providence, "
Gale, Alice J..... Fall River, Mass.
Hawkins, Avis A ..... Providence, R. I.
Jenckes, Clara H..... Woonsocket, "
Kilton, Harriet A..... Providence, "
Lanphear, E. Gertrude ..... Peace Dale, "
Leonard, Mary B..... Providence, "
Munro, Annette G..... Bristol, "
Nichols, Mary J ..... Providence, "
Phetteplace, Estella J..... Woonsocket, "
Potter, Mabel Louise..... Farmington, Conn.

Richards, Anna B ..... Providence, R. I.
Sawin, Ida E ..... Providence, "
Shields, Katherine C ..... East Providence, "
Swan, Helen J ..... Boston, Mass.
Vaughn, Lillian H ..... Providence, R. I.
Walther, Alma L ..... Woonsocket, "

Post Graduates	3
Graduates of 1900	14
Seniors	11
Juniors	6
Sophomores	26
Freshmen	6
Preparatory Department	43
Specials	8
Specials in Wood-Carving	8
Poultry School	23
Horticulture School	6
Nature-study School	25
Total, counting none twice	175

TREASURER'S REPORT.

MELVILLE BULL, *Treasurer, in account with the* RHODE ISLAND COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

1900.	DR.	
Jan. 1.	To cash balance on hand	$720 30
	Commissioner T. B. Stockwell, for assistance in Summer School	150 00
	Interest on 1862 fund	1,808 56
	J. H. Washburn, president, for students' board, etc.	11,033 56
	Cash received from incidentals	508 45
	Cash received from interest	4 72
		$14,225 59

1900.	CR.	
	By salaries	$1,212 39
	Postage, stationery and printing	97 10
	Freight and express	351 07
	Traveling	116 04
	Farm and student labor	2,651 81
	Labor (stenographers, engineers and janitors)	1,307 59
	Store	719 65
	Construction and repairs	408 93
	Provisions	2,065 72
	Boarding expense	929 66
	Grain	591 81
	Coal	322 38
	Implements and incidentals	1,649 17
	Balance	1,802 27
		$14,225 59

THIS IS TO CERTIFY that the undersigned, auditing committee of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, have examined the account of Melville Bull, treasurer, as above, and find the same to be correct, leaving a balance in the said treasurer's hands of one thousand, eight hundred and two dollars and twenty-seven cents ($1,802.27).

HENRY L. GREENE,
J. V. B. WATSON,
Auditing Committee.

Synopsis of the report of the treasurer of the Rhode Island College of Agriculture and Mechanic Arts to the Secretary of Agriculture and the Secretary of the Interior, of amount received under Act of Congress of August 30, 1890, in aid of Colleges of Agriculture and the Mechanic Arts, and of the disbursements thereof, to and including June 30, 1900 :—

Balance on hand July 1, 1899	$438 23
Installment for 1899–1900, received July 14, 1899	25,000 00
	$25,438 23

DISBURSEMENTS THEREOF FOR AND DURING THE YEAR ENDING JUNE 30, 1900 :—

SCHEDULE A. — Disbursements for Instruction in Agriculture and for facilities for such instruction	$3,190 29
SCHEDULE B. — Disbursements for Instruction in the Mechanic Arts and for facilities for such instruction	5,483 77
SCHEDULE C. — Disbursements for instruction in the English Language and for facilities for such instruction	3,565 98
SCHEDULE D. — Disbursements for Instruction in Mathematical Science and for facilities for such instruction	2,564 76
SCHEDULE E. — Disbursements for Instruction in Natural Science and for facilities for such instruction	9,623 43

SCHEDULE F.—Disbursements for Instruction in Economic Science and for facilities for such instruction	1,010 00	
Total expended during the year		$25,438 23

I HEREBY CERTIFY that the above account is correct and true, and, together with the schedules hereunto attached, truly represents the details of expenditures for the period and by the institution named; and that said expenditures were applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their application in the industries of life, and to the facilities for such instruction.

MELVILLE BULL, *Treasurer.*

ITEMIZED EXPENDITURES OF THE $15,000.00 (HATCH FUND FOR AGRICULTURAL EXPERIMENTS) WILL BE FOUND IN THE AGRICULTURAL EXPERIMENT STATION REPORT.

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and

Mechanic Arts.

Kingston, R. I.

1902.

ollege of Agriculture

and

Mechanic Arts.

Kingston, R. I.

19[illegible].

Fourteenth Annual Report

of the

Corporation, Board of Managers

of the

hode Island College of Agriculture and Mechanic Arts,

made to the

General Assembly at its January Session, 1902.

1901 Part I.

Part II — Experiment Station Report — is printed under separate cover.

Providence, R. I.
E. L. Freeman & Sons.... Printers to the State.
1902.

Rhode Island College of Agriculture and Mechanic Arts.

Corporation.

HON. MELVILLE BULL.....NEWPORT COUNTY.
HON. C. H. COGGESHALL.....BRISTOL COUNTY.
HON. HENRY L. GREENE.....KENT COUNTY.
HON. BENJAMIN A. JACKSON.....PROVIDENCE COUNTY.
HON. J. V. B. WATSON.....WASHINGTON COUNTY.

Officers of the Corporation.

HON. HENRY L. GREENE, President.....P. O., RIVERPOINT, R. I.
HON. C. H. COGGESHALL, Clerk.....P. O., BRISTOL, R. I.
HON. MELVILLE BULL, Treasurer.....P. O., NEWPORT, R. I.

Report.

To His Excellency Charles Dean Kimball, Governor, and the Honorable General Assembly of the State of Rhode Island and Providence Plantations, at its January Session, 1902 :

I have the honor to submit herewith the Fourteenth Annual Report of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, as required by law.

HENRY L. GREENE,

President of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts.

Faculty and Assistants.

JOHN HOSEA WASHBURN, PH. D.,

PRESIDENT.

Professor of Agricultural Chemistry and Physiography.

B. S., Massachusetts Agricultural College, 1878; Graduate student, Massachusetts Agricultural College, 1881-1883; Professor of Chemistry, Storrs Agricultural School, 1883-1887; Student in Göttingen University, 1885 and 1887-1889; Ph. D., Göttingen, 1889; Appointed President, 1890.

HOMER JAY WHEELER, PH. D.,

Professor of Geology.

B. S., Massachusetts Agricultural College, 1883; Assistant Chemist, Massachusetts State Experiment Station, 1883-1887; Graduate student, University of Göttingen, 1887-1889; Ph. D., Göttingen, 1889; Appointed Chemist of Rhode Island Agricultural Experiment Station and Professor of Geology, 1890.

E. JOSEPHINE WATSON, A. M.,

Professor of Languages.

A. B., Smith College, 1882; A. M., Cornell University, 1883; Assistant in English, Smith College, 1883-1887; Student of North European Languages in Göttingen, 1887-1889; Appointed Professor of Languages, September, 1892; Student of French in Tours, summer of 1895.

WILLIAM ELISHA DRAKE, B. S.,

Professor of Mechanical Engineering.

B. S., Polytechnic Institute, Worcester, 1886; Instructor in Physics and Electricity, Worcester Polytechnic Institute, 1887; Instructor in Woodworking at Pratt Institute, Brooklyn, 1887-1893; Appointed Professor of Mechanical Engineering, 1893.

HARRIET LATHROP MERROW, A. M.,

Professor of Botany.

B. S., Wellesley College, 1886; Teacher of Science, Plymouth (Mass.) High School, 1887-1888; Teacher of Science, Harcourt Place, Gambier, O., 1888-1891; Graduate student, University of Michigan, 1891-1892; A. M., Wellesley College, 1893; Graduate assistant, Botanical Laboratory, University of Michigan, 1893-1894; Appointed Professor of Botany, January, 1895.

All salaries of members of the faculty are paid from United States funds.

FRED WALLACE CARD, M. S.,

Professor of Horticulture, and Acting Professor of Agriculture,

B. S., Cornell University, 1892; M. S., Cornell University, 1893; Assistant Horticulturist, Cornell University Experiment Station, 1893; Associate Professor of Horticulture, University of Nebraska, 1893-1898; Appointed Professor of Horticulture, 1898.

COOPER CURTICE, D. V. S., M. D.,

Professor of Animal Industry,

B. S., Cornell University, 1881; D. V. S., Columbia Veterinary College, N. Y., 1883; M. D., Columbian University, Washington, D. C., 1887; Assistant Paleozoic Paleontologist, U. S. Geological Survey, 1883-1886; Specialist, Department of Agriculture, Washington, D. C., 1886-1892; Veterinarian, State Board of Health, N. Y., 1892-1894; Tuberculosis Specialist, U. S. Department of Agriculture, Washington, D. C., 1895-1896; Professor of Zoölogy, North Carolina College of Agriculture and Mechanic Arts, 1898; State Veterinarian, North Carolina, 1899; Appointed Professor of Zoölogy, 1900; Professor of Animal Industry, 1902.

*ARTHUR CURTIS SCOTT, B. S.,

Professor of Physics,

B. S., R. I. College of Agriculture and Mechanic Arts, 1895; Appointed Instructor in Physics, 1895; Appointed Professor of Physics, 1897.

SOLOMON E. SPARROW,

CAPTAIN, UNITED STATES ARMY.

Professor of Military Science and Tactics,

Graduate of West Point, 1878; Detailed Professor of Military Science and Tactics, 1900.

LAURENCE ILSLEY HEWES, PH. D.,

Professor of Mathematics,

B. S., Dartmouth, 1898; With Engineering Department, Massachusetts Highway Commission, seasons of 1897-1899; Assistant Engineer, G. R. & I. Street Railway, Essex Co., Mass., 1899, Inspector of Macadam Road Construction, Brookline, Mass., 1900; Ph. D., Yale University; 1901; Appointed Professor of Mathematics, 1901.

VIRGIL LOUIS LEIGHTON, PH. D.,

Associate Professor of Chemistry,

A. B., Tufts College, 1894; A. M., Kansas State University, 1895; Ph. D., Tufts College, 1897; Instructor in Organic Chemistry, Tufts College, 1897-1901; Appointed Associate Professor of Chemistry, 1901.

All salaries of members of the faculty are paid from United States funds.

**Absent for the year September, 1901, to September, 1902.*

JOHN BARLOW, A. M.,

Professor of Zoölogy,

B. S., Middlebury, 1895; A. M., Brown University, 1895; Assistant Biologist, R. I. Experiment Station, 1898; Professor of Biology, Fairmount College, 1898-1901; Appointed Professor of Zoölogy, 1901.

ALBERT AUGUSTUS RADTKE, B. S.,

Acting Professor of Physics,

B. S., University of Wisconsin, 1900; Appointed Instructor in Physics, 1900; Acting Professor of Physics, 1901-1902.

THOMAS CARROLL RODMAN,

Instructor in Woodwork,

Appointed, 1890.

MABEL DEWITT ELDRED, B. S.,

Instructor in Drawing,

B. S., R. I. College of Agriculture and Mechanic Arts, 1895; Appointed Instructor in Drawing, 1897.

ELIZABETH WATSON KENYON, A. M.,

Instructor in Languages and History,

B. S., Mt. Holyoke College, 1896; A. M., Brown University, 1897; Instructor in English and History, Middleborough (Mass.) High School, 1898-1900; Appointed Instructor in Languages, 1900.

SARAH WATSON SANDERSON, B. L.,

Instructor in Languages,

B. L., Smith College, 1900; Appointed Instructor in Languages, 1900.

HOWARD BURDICK, B. S.,

Instructor in Agriculture and Farm Superintendent,

B. S., R. I. College of Agriculture and Mechanic Arts, 1895; Appointed Assistant in Agriculture, 1897; Appointed Instructor in Agriculture and Farm Superintendent, 1900.

MARSHALL HENRY TYLER, B. S.,

Instructor in Surveying, and Master of the Preparatory Department,

B. S., Amherst College, 1897; Instructor at St. Mark's, 1897-1898; Appointed Master of the Preparatory Department, 1898.

All salaries of members of the faculty are paid from United States funds.

LUCY HELEN GAGE, A. B.,

Instructor in Stenography and Typewriting.

A. B., Tufts College, 1899; Graduate of Chandler Normal Shorthand School, 1900; Appointed Instructor in Stenography and Typewriting, 1900.

CAPTAIN TIBERIO GARCIA ALOMÁ,

Assistant Instructor in Spanish.

JOHN FRANKLIN KNOWLES, B. S.,

Assistant in Woodwork.

GEORGE BURLEIGH KNIGHT,

Assistant in Ironwork.

LILLIAN MABELLE GEORGE, B. S.,

Assistant in English, and Librarian.

CARROLL KNOWLES, B. S.,

Assistant in Mechanics.

NATHANIEL HELME,

Meteorologist.

Non-resident Demonstrators and Lecturers for the current year.

ANNA BARROWS, Editor "American Kitchen Magazine," Boston, Mass. Subject: "Cooking Poultry and Eggs."

E. F. BARRY, Machias, Maine. Subject: "Pigeons."

GEORGE M. CLARK, Higganum, Conn. Subject: "Grass Culture."

J. F. CRANGLE, Supt. Valley Farms, Simsbury, Conn. Subject: "Turkeys and Pheasants."

I. K. FELCH, Natick, Mass. Subject: "Standard, Scoring, and Judging," with demonstrations.

GEORGE W. FELTON, Cliftondale, Mass. Subject: "Belgian Hares."

All salaries of members of the faculty are paid from United States funds.

FRANK W. GAYLOR, Melville Station, Newport, R. I. Subject: "Construction of the Brooder House."

J. H. HALE, South Glastonbury, Conn. Subject: "Peach Culture."

HENRY HALES, Ridgewood, N. J. Subject: "Origin and Development of Fowls."

D. J. LAMBERT, Plymouth Rock Farm, Cowesett, R. I. Subject: "How to Begin in the Poultry Business."

W. D. RUDD (W. H. Rudd, Son & Co.), Boston, Mass. Subject: "Needs of the Market."

F. W. MURPHY (W. H. Rudd, Son & Co.), Boston, Mass. Demonstration: Preparing Fowls for Market.

HORACE MINER, Westerly, R. I. Subject: "Geese."

GEORGE H. POLLARD, Thomas Lawson Farm, Egypt, Mass. Subject: "Ducks."

FRANKLANE L. SEWELL, Artist for "Reliable Poultry Journal," Chicago, Ill. Subject: "Types of Birds."

FRANK H. STADTMUELLER, Supt. C. E. Beach's Farm, West Hartford, Conn. Subject: "Farm Economics and Farm Management."

A. A. SMITH, Woonsocket, R. I. Subject: "The Dairy Cow."

GEORGE D. SPRAGUE, Chapinville, Conn. Subject: "Experiences of a Farm Manager."

E. COLLINS TEFFT, Wakefield, R. I. Subject: "Poultry Buildings, Mating and Rearing Chickens."

H. A. NOURSE, Supt. Fisher's Island, New York. Subject: "Preparing Fowls for Exhibition."

THOS. H. TAYLOR, JR., Supt. Poultry Dept., Briarcliff Farms, Briarcliff Manor, New York. Subject: "Broilers, and Daily Operations on a Large Plant."

J. H. ROBINSON, Editor "Farm Poultry," Boston, Mass. Subject: "Value of Advertising to the Poultryman."

EDWIN C. POWELL, Assistant Editor "N.E. Homestead," Springfield, Mass. Subject: "Co-operation in Poultry-work."

CHAS. O. FLAGG, Farm Supt., Hardwick, Mass. Subject: "Dairying, with Poultry Plant."

H. W. CONN, Ph.D., Wesleyan University, Middletown, Conn. Subject: "Bacterial Diseases of Animals."

JAMES E. RICE, New York State Farmers' Institute Bureau, New York. Subject: "Brooding, Winter Egg Production, and Plans."

THOMAS WRIGHT, South Sudbury, Mass. Subject: "Pigeons."

College Calendar.

1902.

Winter Term.

January 6, 10 A. M.....Examination of Conditioned Students.

January 6, 1 P. M.....Term begins.

January 30.....Day of Prayer for Colleges.

February 22.....Washington's Birthday.

April 1, 12 M.....Term ends.

Spring Term.

April 8, 10 A. M..... Examination of Conditioned Students.

April 8, 1 P. M .....Term begins.

May 9.....Arbor Day.

May 30.....Memorial Day.

June 15.....Baccalaureate Sunday.

June 16.....Reading of Cincinnati Orations for Lippitt Prize.

June 17..... Commencement.

June 20, 9 A. M....Entrance Examinations for College and Preparatory School, given at the College, and the State Normal School, Providence.

Fall Term.

August 29, 9 A. M.....Entrance Examinations at the College.

September 16, 9 A. M.....Entrance Examinations at the College.

September 16, 10 A. M.....Examination of Conditioned Students.

September 17, 1 P. M.....Term begins.

November 4.....Election Day.

———— .....Thanksgiving Day.

December 23, 12 M.....Term ends.

1903.

Winter Term.

January 6, 9 A. M.....Examination of Conditioned Students.

January 6, 1 P. M.....Term begins.

Experiment Station Staff.

JOHN H. WASHBURN, Ph. D.,	President of the College.
*H. J. WHEELER, Ph. D.,	Director and Chemist.
FRED W. CARD, M. S.,	Horticulturist.
†COOPER CURTICE, D. V. S., M. D.,	Biologist.
‡BURT L. HARTWELL, M. S.,	First Assistant Chemist.
GEORGE E. ADAMS, B. S.,	Assistant in Field Experiments.
ALFRED W. BOSWORTH, B. S.,	Assistant Chemist.
NATHANIEL HELME,	Meteorologist.
S. ALINE NYE,	Stenographer and Accountant.
MARY G. SCHERMERHORN,	Stenographer and Librarian.

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* In charge of field experiments.

† In charge of poultry experiments.

‡ Temporarily absent, engaged in study.

The publications of the Station will be mailed free on request to anyone in Rhode Island interested in agriculture. The Station desires the co-operation of the farmers of the State in the work of investigation, and any facts of special interest concerning animal or vegetable growth or disease are solicited. Visitors are always welcome. Railroad station, telegraph, express, and post-office—Kingston, Rhode Island.

GENERAL VIEW OF CAMPUS.

The College.

History.

IN 1863 the State of Rhode Island accepted from the United States Government the land grant scrip, which gave to each State thirty thousand acres of the public lands for ıch Senator and Representative in Congress. The land was to e sold by the States or their agents, the proceeds arising from he sale invested, and the annual income derived therefrom was to ›e "inviolably appropriated by each State which may take and ·laim the benefit of this act, to the endowment, support, and maineinance of at least one college where the leading object shall be, vithout excluding other scientific and classical studies, and inluding military tactics, to teach such branches of learning as are elated to Agriculture and Mechanic Arts, in such manner as the egislatures of the States may respectively prescribe, in order o promote the liberal and practical education of the industrial lasses in the several pursuits and professions in life."

On March 2, 1887, the act known as the Hatch Act was passed, ppropriating $15,000 annually to each State, for the purpose of stablishing an Agricultural Experiment Station in connection ·ith an Agricultural College or School.

From the time of the acceptance by the State of Rhode Island ·f the land scrip in 1863, there were many people who felt that his State did not offer to young men such advantages for instruction in agriculture and mechanic arts as others afforded that had ;enuine agricultural and mechanical colleges. So great was the lissatisfaction among the citizens of Rhode Island at the absence

of these educational advantages, that they were determined to have the Hatch Agricultural Experiment Station located at a *bona fide* agricultural educational institution.

The Rhode Island State Agricultural School was established according to Chapter 706 of the Public Laws, passed May 23, 1888.

The United States Congress, on August 30, 1890, passed an act known as the New Morrill Bill. This appropriated for the further support of the agricultural and mechanical colleges a sum beginning with $15,000 and continuing, with a yearly increase of $1,000, until the annual appropriation should reach $25,000.

That the school already established might receive the benefit of the act of Congress, the General Assembly amended Chapter 706 of the Public Laws, incorporating the Rhode Island College of Agriculture and Mechanic Arts.

Since September, 1892, the institution has been conducted on a college basis, with an entirely new course of study.

On April 19, 1894, the Legislature passed an act authorizing the State treasurer to pay Brown University the sum of $40,000, in consideration of which the university was to turn over to the State the proceeds of the original land grant of 1862 and to withdraw from the United States Supreme Court its suit for the Morrill fund.

On January 27, 1895, the college dormitory was destroyed by fire; but it was replaced by a new granite building, which was ready for use the first of October of the same year, and was called Davis Hall.

At the January session of the Legislature, 1897, the institution was given an appropriation for a stone building, one hundred and thirty feet by forty feet, practically three stories high. The basement has three rooms used for instruction in photography and physics, and a large room devoted to electrical engineering. On the second floor are recitation-rooms, chapel, library and reading-room, and young women's study-room. The third floor contains a large hall for drill and gymnasium purposes, above which are bath-rooms and lockers. The hall is also used for assemblies

whenever larger audiences are expected than the chapel can accommodate. This building is called Lippitt Hall.

Since then an excellent dairy barn has given the agricultural department increased facilities for instruction.

On May 8, 1901, the Board of Managers established a school of mines, to be connected with the school of mechanical and electrical engineering. The courses of instruction for the Freshman and Sophomore years of this school have already been arranged, and are identical with the courses given in the mechanical and electrical engineering school. The courses for the Junior and Senior years will be made ready for publication as soon as sufficient funds are at hand to put them into effect.

CHANGES IN THE FACULTY.—Anne L. Bosworth, Ph.D., who had been professor of mathematics since the establishment of the department in 1892, sent in her resignation, to go into effect in June of this college year. It is with regret that the institution loses Miss Bosworth from the faculty. Her conscientious work has been, from the beginning, highly appreciated by every member of the institution. Laurence I. Hewes, Ph.D. (Yale), was appointed professor of mathematics to succeed her. A. C. Scott, B. S., professor of physics, was granted a year's absence for study, and his place has been filled by A. A. Radtke, B. S. At the close of the June session, J. E. Bucher, Ph. D., resigned as associate professor of chemistry, to accept the position of associate professor of chemistry at Brown University. His place has been filled by the appointment of Virgil L. Leighton, Ph. D. (Tufts). A. A. Brigham, Ph. D., resigned as professor of agriculture, to accept a position with the Cornell Incubator Mfg. Co., and Professor F. W. Card was appointed acting professor of agriculture. Mr. Joseph A. Tillinghast, who had been connected with the experiment station for a number of years, and who had done most efficient work in that department, was appointed instructor in agriculture in October. Shortly after his appointment he was taken ill with typhoid fever, and died November 21, 1901. His death takes from the in-

stitution one who has been noted for his loyal, conscientious work. All feel the personal loss of his friendship. Upon his death, Cooper Curtice, M. D., D. V. S., professor of zoölogy, was appointed professor of animal industry, thus leaving a vacancy which was filled by the appointment of John Barlow, A. M.

Object of the Institution.

The Rhode Island College of Agriculture and Mechanic Arts is an integral part of the school system of the State. Young men and young women from the high schools are admitted to the privileges of the institution without charge for tuition. The object of the college is to prepare young people to take active part in the agricultural, manufacturing, and commercial development of the State. To this end, technical instruction in the sciences and mechanic arts is the fundamental work of the institution. In order that specialization may not be premature, technical instruction in the various courses is accompanied by instruction in languages, history, political science, and mathematics.

There are six courses leading to the degree of Bachelor of Science: agriculture, mechanical engineering, electrical engineering, chemistry, biology, and general science. All regular students take the same course through the Freshman year. With the opening of the Sophomore year the engineering students begin to follow a somewhat different line of work from that taken by students in the scientific courses. Not until the Junior year is choice made of the particular course in which the student hopes to take a degree.

The aim of the agricultural course is to fit students not only for practical agriculture but for positions in experiment stations, and as teachers. To this end thorough instruction is given in science and the application of its principles to agriculture, supplemented by a general training in mathematics and languages. The mechanical course is intended for those wishing to become mechanical engineers, as the electrical course is designed to train electrical

engineers. The chemical course offers several special lines of work. A student may prepare himself to become a general chemist or a teacher; may specialize in agricultural chemistry with a view to experiment-station work; or may elect industrial chemistry with the idea of obtaining a position in a factory, dyeing establishment, or along other technical lines. In the course in biology the student may take his major work in animal or in plant biology. The course offers special inducements as a preparation for the medical or veterinary school. It is likewise adapted to fit one to become a teacher, an assistant in an experiment station, or to take a government position in some biological line of work. The general science course, as the name implies, is not so special as the other courses. It offers a number of electives in history, the modern languages, and art. It is designed for those who wish a good general education in preparation for any line of life-work which they may follow. In the Senior year every student is required to prepare a thesis or report on some subject connected with the work of the course which he has chosen.

Preparatory School.

Young men and young women who have had no opportunity to receive high school instruction may enter this department to prepare for the college.

For entrance requirements, see pages 72–73.

Special Courses.

Whenever possible, students are urged to enter one of the courses leading to a degree. The arrangement of these courses is the result of careful thought and long experience as to the best combination of studies to fit one for the various occupations in which a technical education is required; and it is believed that no such thorough preparation can be obtained from special courses selected by the student.

However, any courses described in this catalogue may be taken

by special students of maturity, who can satisfy the professor in charge of the subject chosen that they are prepared to derive benefit from such work.

Special Students in Agriculture.

Students having a working knowledge of the English branches may enter the college without examination and take those subjects which will prove of most direct benefit to them in the work of the farm. One or two years can thus be spent with excellent results. A certificate will be granted at the end of the time, showing the work covered. Such a course would consist of the study of agricultural soils, drainage, agricultural implements and apparatus, farm fertility and its maintenance, field-crops, breeds of farm animals, stock-breeding, feeding of farm animals, dairy-husbandry, poultry-raising, farm-accounts, the principles of horticulture, fruit-growing, vegetable-gardening, landscape-gardening, physiology, entomology, bench-work, wood-turning, and forging. Suitable courses in botany are also available to those having sufficient training or experience to enable them to take such courses with profit. In connection with the above, other subjects for which the student is fitted may be taken. The study of English should be included in most cases.

A special course in farm practice, continuing six weeks, is offered before the Christmas holidays. A special course in poultry-keeping, also continuing six weeks, follows the Christmas vacation. Payment of tuition fees for those outside the State and board for the full time is required in advance of students registering in the special courses. Those interested in these courses will please send for circulars giving a full description of them. Address the president.

Requiremenst for Admission to the College, 1902.

Graduates from high schools, and other schools of similar grade, are admitted without examination, on certificates which are filled

out by their principals. The candidate must apply to the college for the certificate, giving the address of his principal who is to certify him. The college will correspond with the principal, furnishing blanks for him to fill. Graduates from high schools are not admitted on diploma.

Candidates not entering the Freshman class on certificate will be examined in arithmetic; algebra; plane geometry; English grammar; advanced English; one year of German, French or Latin.

In the arithmetic examination especial attention will be paid to fractions, the metric system, simple and compound proportion, and square and cube root; thorough drill in mental arithmetic will be necessary. The applicant should have mastered all of Wells's Academic or Wentworth's School Algebra, and Wells's Plane Geometry, or their equivalents.

The English requirements are those prescribed for entrance to the New England colleges. The student will be expected to show familiarity with the works named below. These are divided into two classes. Those marked (*a*) are to be read, and the candidate will be required to show a general knowledge of their subject-matter and of the lives of the authors. Those marked (*b*) are to be thoroughly studied, so that the candidate will be able to pass an examination upon their subject-matter and structure. To be acceptable, the candidate's paper must show a good knowledge of spelling, capitalization, punctuation, sentence and paragraph structure. The books prescribed for 1902 are the following: (*a*) Addison's The Sir Roger de Coverley Papers; Coleridge's The Ancient Mariner; Cooper's The Last of the Mohicans; Eliot's Silas Marner; Goldsmith's The Vicar of Wakefield; Lowell's The Vision of Sir Launfal; Pope's Iliad, books I, VI, XXII, XXIV; Scott's Ivanhoe; Shakespeare's The Merchant of Venice; Tennyson's The Princess. (*b*) Burke's Speech on Conciliation with America; Macaulay's Essays on Milton and Addison; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Shakespeare's Macbeth. For 1903: (*a*) Addison's The Sir Roger de Coverley Papers; Carlyle's Essay on Burns; Coleridge's The Ancient

Mariner; Eliot's Silas Marner; Goldsmith's The Vicar of Wakefield; Lowell's The Vision of Sir Launfal; Scott's Ivanhoe; Shakespeare's The Merchant of Venice, and Julius Cæsar; Tennyson's The Princess. (*b*) Same as 1902. For 1904: (*a*) Same as 1903. (*b*) Same as 1903. For 1905: (*a*) Same as 1903. (*b*) Same as 1903. The language requirements cover one year's work in either French, German or Latin; and Latin is recommended. In French and German, this requirement comprises the essentials of grammar, easy reading and elementary composition. In Latin, the candidate must be prepared to study Cæsar. The following textbooks are recommended: Chardenal's Complete French Course, Lyon and De Larpent's Primary French Translation Book; the Joynes-Meissner German Grammar, Part I, or Collar's Shorter Eysenbach, Guerber's Märchen und Erzählungen, Part I; Collar and Daniel's First Latin Book, or Lindsay and Rollins's Easy Latin Lessons.

Admission to Advanced Standing.

Candidates may enter any of the higher classes for which they are prepared.

Opportunities Offered to Women.

The courses of instruction are open to men and women alike. The women's dormitory will accommodate a limited number of students, and the college will on application find boarding-places for others in private families in town. Special waiting and study-rooms are provided for the women who are day students.

Expenses for Women.

Room-rent is free. Fuel and lights are supplied at cost. Rooms are provided with necessary furniture, including mattresses, but no other bedding material. Other expenses are as given below. The women have an opportunity to do their own washing and

ironing. A Singer and a Household sewing-machine are at the disposal of all those living at the dormitory.

*Expenses.**

Tuition is free to all Rhode Island students. The regular expenses are tabulated below:

		Per year. Minimum.	Maximum.
	†Board, $3 per week, for 36 weeks	$108 00	$108 00
Men's Dormitory.	Room-rent, $3 per term	9 00	9 00
	Lights, $1 to $3 per term	3 00	9 00
	Fuel, spring and fall terms, each $3; winter term, $6	12 00	12 00
	Books	15 00	30 00
	Washing, 30c. to 60c. per week	10 80	21 60
	Uniform for military drill, $15	7 50	30 00
	Reading-room tax, 25c. per term	75	75
	General expense, for damage in building, etc., 50c. per term	1 50	1 50
	Laboratory fees, $2 to $10 per term	6 00	30 00
		$173 55	$251 85

The amount of laboratory fees depends upon the laboratory work taken each term. One dollar per term is charged for each of the following: botanical, zoölogical, and physical laboratories; carpenter shop; wood-turning, forge shop, machine shop, and wood-carving. This pays for the material ordinarily used in class work and for the wear and care of tools and apparatus. Any person who breaks apparatus or tools, through carelessness or neglect of instructions, will be charged the cost of the same. The chemical laboratory fee is three dollars per term for qualitative, quantitative, and organic laboratory work. This covers general chemicals and use of apparatus. Students are required to pay for breakage and for any chemicals they may use in making special prepara-

* For exceptions in expenses for women, see above.

† In consequence of the increased cost of living, the college reserves the right to raise the board to $3.50 per week whenever necessary.

tions for themselves. A fee of three dollars is also required in the electrical laboratory. Graduates pay the cost of diplomas, five dollars. *No diploma will be issued until the candidate has paid all term bills.* Every able-bodied male student is required to drill and to wear a uniform. The uniform must be paid for immediately on entering the college, when the students are measured for the suits. When worn only on drill and properly cared for, one uniform may last two or more years. The student may, however, wear his uniform all the time. Day students are required to deposit five dollars per term in advance. The college conveys students daily to and from the railroad station free of charge. Once at the beginning and end of each term, a team conveys trunks to and from the station. Boarding students shall pay term bills in advance, deposit fifty dollars each term, or give bond for two hundred dollars for the payment of all bills. No bond will be accepted from any member of the faculty. No reduction on board is made for less than five whole days' absence at one time, and this only when due written notice has been given. Fifteen cents extra is charged for each meal sent to a student's room, from sickness or any other cause. *All students in the men's dormitory are required to supply their own furniture and bedding.* The necessary furniture may be obtained at the college when desired. A room may be furnished for from eight to ten dollars. Iron bedsteads three feet wide are included under room-rent. The furniture, if properly kept, may be sold, when the student leaves, for one-half to three-fourths the original price. All clothing should be distinctly marked.

Self-help.

A limited amount of work about the buildings, on the farm, at the experiment station, in the laboratories, and in the college laundry, will be furnished to students who desire it and who prove industrious and trustworthy. Good students, who desire to help in paying their expenses, should be able to earn from twenty-five to one hundred dollars per year, depending upon the amount of

time they can spare from their studies. *No work is given to students who have not a fair standing in their classes.* The larger sums can be earned only by students who spend their vacations here at work. These opportunities are offered only to students who show a sense of responsibility in the performance of the duties assigned to them, and a disposition to render a fair equivalent of work for the compensation they receive. Thus far no worthy student has been compelled to leave the institution for lack of means.

The Lippitt Prize.

The Lippitt prize consists of a purse of one hundred dollars, offered through the generosity of ex-Governor Charles Warren Lippitt. This sum is divided into two prizes, the first of sixty and the second of forty dollars, which are awarded for the best written and delivered essays on the history of Rhode Island in the Revolution. These essays are of the nature of Cincinnati Orations and are read on the Monday preceding commencement. In 1901 the successful competitors were Edith L. Keefer, Oceanus, N.Y., first prize; Edna Ethel Dawley, Kenyon, R. I., second prize.

Discipline.

The discipline of the institution is in the hands of the faculty, assisted by two joint committees of faculty and students, called the Activity Committees. The committee for the direction of the young women is composed of three women of the faculty and two students; and that for the young men is composed of three men of the faculty and four students, one from each class. Entertainments and exercises which are conducted by both the men and women students are sanctioned by the conference of these joint committees. It is the duty of the committees to see that the general rules of conduct for the members of the institution are observed. Money paid for dormitory expenses will not be refunded to students dismissed from the dormitory.

Regulations of the College.

Conditions.—Section 1.—Any student absenting himself from more than ten per cent of the total number of recitations in any subject shall not be allowed to take his examination in that subject, except by special vote of the faculty, but shall be conditioned.

Section 2.—No student shall begin or drop a study without the consent of the committee on courses of study; the penalty for dropping such subject being a condition.

Section 3.—Examinations of conditioned students shall be held only on the days assigned in the college calendar. Any student who, after such examination, shall still have three or more conditions shall be obliged to withdraw from the college. Students still having not more than two conditions may take second examinations at the next regular time, and failing to pass, shall have no further opportunity to remove such conditions except by special vote of the faculty.

Section 4.—A student wishing to take an examination to remove a condition must make application for the same to the professor in whose department the condition was received, at least seven days before the date of the examination.

Section 5.—Students, whether regular or special, shall remove entrance conditions to both the preparatory department and the college within a year from the date of entrance, unless excused by the committee on courses of study.

Exemption from Examination.—Section 6.—Students shall be exempt from examination at the end of the term in studies in which their term averages are above eighty per cent.

Thesis.—Section 7.—Every student who is a candidate for a degree shall prepare a thesis, and shall submit it to the president of the college at least one month before the time for granting the degree.

Student Publications.—Section 8.—No student shall publish any article in any college, class, or society publication designed for public circulation, or deliver any address on the college campus attended by persons other than students, without the consent of the president or some person appointed by him for granting such permissions.

Athletics.—Section 9.—No student shall represent the college on the athletic field, or in any other organization before the public, who is not regularly registered and in good standing; by good standing is meant conformity to all the rules of the college.

Public Worship.

The students are expected to be present at chapel exercises every morning, and on Sundays to attend some church at least once a day. Absence from chapel must be reported at the president's office for excuse on Tuesday morning of each week. A branch of the Intercollegiate Young Men's Christian Association is doing good work among the students, as is also the Young Women's Christian Union.

The Rhode Island College Lecture Association.

Faculty and students, uniting with residents of the vicinity, conduct a winter lecture course, the aim of which is to introduce talented speakers upon subjects both entertaining and instructive. The association may be looked upon as a permanent and important factor in college activities. For the season of 1901–1902, the following programme was secured:

Dec. 20.—"The English Lakes and Their Poets," Caleb Thomas Winchester, L. H. D.

Jan. 31.—"Patriotism under the New Conditions of Our National Life," Hon. Merrill Edwards Gates, LL. D., L. H. D.

Feb. 7.—"The Grandeur of the Canadian Alps," (illustrated), Prof. Charles E. Fay.

March 7.—"Thomas Carlyle," Washington Gladden, D. D.

April 18.—"Philosophy of Wit and Humor, and Stories 'Round the Stove," Melville D. Landon ("Eli Perkins").

The Library.

The library occupies a large room in Lippitt Hall and numbers about ten thousand volumes. The books are arranged in stacks, to which the students have free access. The Dewey system of classification is used; and a dictionary catalogue gives author, subject, and title. As the library has been from the first intended for reference work, the various departments of instruction have made their selections with the greatest care. Combined with the library is the reading-room, where one hundred of the leading periodicals—of literary, scientific, and general interest—are on file. From time to time these are bound, and prove of great value in research work.

The library is open every week day from 7:30 A. M. to 6:00 P. M., with the exception of a half-hour at noon; on Sunday it is open in the afternoon only, from 2:30 to 6:00. The librarian or her representative is in constant attendance to aid any one in search of information. As the college is an institution designed to further the educational interests of Rhode Island, all residents of the State are urged to use its library.

Location.

The college is situated on a hillside, which furnishes it with quick drainage and a delightful view. It is less than two miles from the railroad station. A macadamized road leads from the grounds to the station, insuring at all times a good walk and drive. The railroad station is situated on the New York, New Haven & Hartford Railroad, with twenty-one trains daily, in the winter, stopping at Kingston, and more in the summer. The town is a very healthful place, five or six miles from the ocean.

THE LIBRARY.

Departments of Instruction.

Chemistry.

DR. WASHBURN, DR. LEIGHTON.

Instruction in chemistry begins with the Freshman year and consists of lectures, recitations, and laboratory work; two hours of laboratory work being counted as equivalent to one period of recitation or lecture work. The course in general chemistry extends through the second and third terms of this year; two periods per week being devoted to lectures and recitations and two periods to laboratory work during the winter term, three periods to lectures and recitations and two periods to laboratory work in the spring term. The course in qualitative analysis extends through the first and second terms of the Sophomore year, a portion of the time being given to lectures and recitations, but the greater part to practical work in the laboratory.

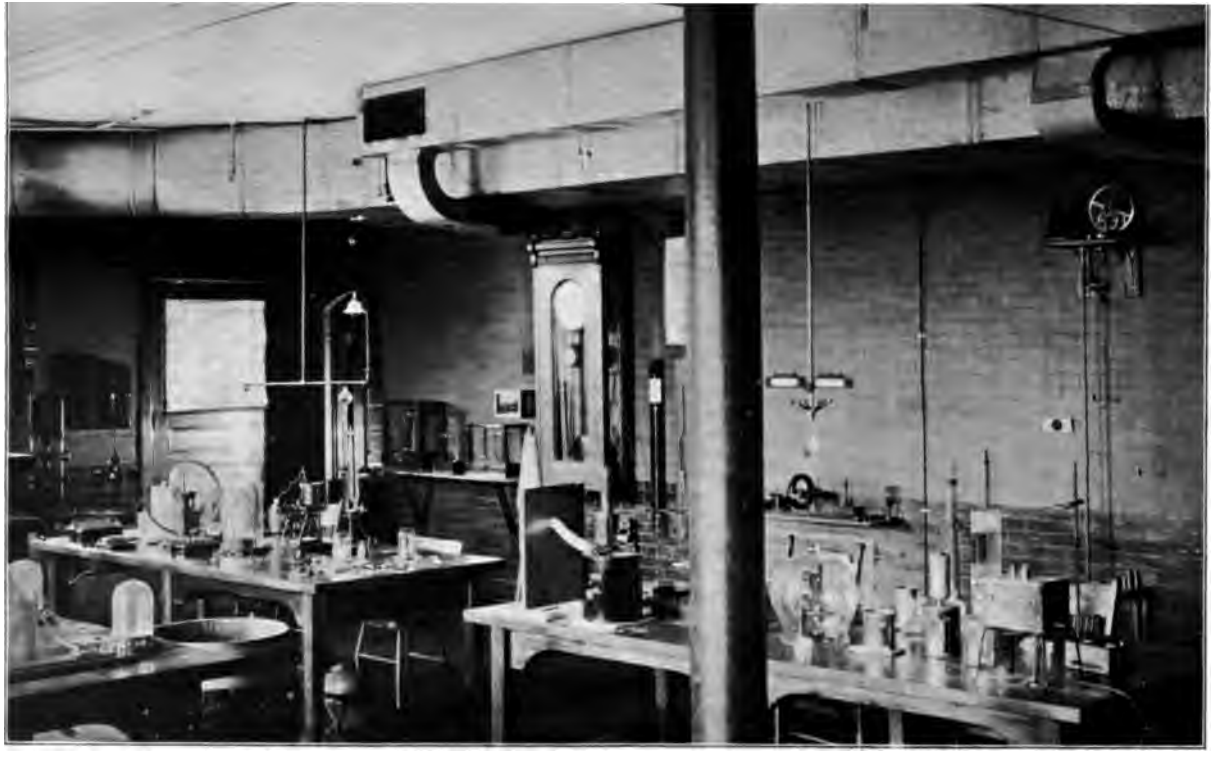
The above courses are required of all candidates for a degree, as essential to a liberal education, and are preparatory to the subsequent courses, which are designed for students desiring to make chemistry their profession, either as teachers or practical chemists. The more advanced courses furnish an excellent preliminary basis for the study of medicine, biology, or agriculture.

The subject of stoichiometry and theoretical chemistry is begun in the general chemistry and continued in the third term of the Sophomore year, much attention being given to the application of the principles to problems. The course in inorganic preparations occupies three periods per week in the first term of the Junior year. Quantitative analysis is also taken up in this term

and extends throughout the Junior year, both gravimetric and volumetric work being required. In the elementary course the simpler salts and minerals are analyzed, and in the advanced course the more complicated minerals, ores, and industrial products. Organic chemistry begins in the first term of the Junior year and extends through five terms. It includes an extended course in organic preparations. The subject of theoretical chemistry, begun in general chemistry and continued in the Sophomore year, is taken up in a much more advanced way in the first term of the Senior year, a portion of the time being devoted to laboratory work. The course also affords opportunity for work in gas analysis, mineralogy, blow-pipe analysis, assaying, sanitary chemistry, industrial chemistry, physiological chemistry, agricultural chemistry, toxicology, and textile coloring. In the Senior year, candidates for a degree in the chemical course are required to prepare a thesis on some chemical subject.

A short course in agricultural chemistry as applied especially to poultry foods, their use and digestion, is given to students in poultry-raising. A course in the chemistry of soils and fertilizers, their composition, manufacture and use, the composition and analysis of fodders and feeding-values is offered to students in the Junior year. A course in agricultural chemistry, with a study and review of bulletins and scientific papers on feeds and fodders, together with a short course in agricultural geology, is offered in the Senior year.

The laboratory is thoroughly equipped with apparatus for the above-mentioned courses, and opportunity is given for graduate students to continue work in the above lines beyond that required for a degree. Provision is also made for special students who are unable to spend the time required by the regular courses. They may take such courses as will be of most benefit to them in the line of work they intend to follow. A large number of German, French, and English chemical journals are accessible, thus affording excellent opportunity for research work.



CORNER OF PHYSICAL LABORATORY.

Physics.

PROFESSOR SCOTT, MR. RADTKE.

Instruction in physics in the college course begins with the first term of the Freshman year and consists of lectures, recitations, and laboratory work. The various branches grouped under this head are treated both mathematically and experimentally. Mechanics and heat are studied in the fall term, magnetism and electricity in the winter term, and sound and light in the spring term. The recitations are prepared chiefly from Wentworth and Hill's Text-book of Physics. The laboratory work consists of special experiments from various authors.

The study of advanced physics follows in the Sophomore year and is required throughout the year of all students in the engineering courses; and is open as an elective to all students in other courses who have completed course I or its equivalent. This course embraces a deeper and more extended discussion of heat and mechanics of fluids, in the fall term; of statics, kinetics, wave motion and sound, in the winter term; and light, electricity and magnetism, in the spring term. Hastings and Beach's General Physics is used as a text-book, supplemented by lectures.

Special instruction in photography is offered as an elective course to students who have an elementary knowledge of physics and chemistry. The course embraces lectures and recitations, together with instruction in practical methods of making negatives and photographs. A suitable photographic laboratory is provided for reproducing the appearance of tested specimens, photographs of physiographic features, microscopic structure of substances, etc., for use in the lecture-room.

A course in advanced photography is open to students who have completed the elementary course. It consists of a more extended study of the chemistry and optics of photography, and laboratory work in making bromide enlargements and lantern-slides. This is followed by the theory and use of the microscope and practical

work in photo-micrography, the manipulation of the projection microscope and the optical lantern. The department is provided with room and ample apparatus for illustrating and testing every form of light that is in use in projection work, together with the apparatus for X-ray photography with either the high frequency induction coil or electrostatic machine. The theory and practice of color photography are considered, and apparatus is at hand for the projection of photographs in colors from nature.

Physiography and Agricultural Geology.

DR. WASHBURN.

The Freshman class study physiography during the fall term, with two exercises per week of recitation and one of laboratory work, and during the winter with one exercise per week of laboratory work, including occasional excursions and field work.

A well-equipped physiographic laboratory, with globes, models, maps, charts, and other illustrative material, together with a special library, is open to the students. Especial attention is given to the scientific phases of the study—to the chemistry and geology of the soils, the influence of air and water on the same, and the flora and fauna of the different countries. Davis's Physical Geography is taken as a basis; and Dana's Coral Islands, Shaler's Aspects of the Earth, and Dana's Characteristics of Volcanoes are thoroughly studied during the term. Five hundred lantern-slides, illustrating ethnological subjects, are projected and explained before the class. This course seems to be especially valuable to introduce the student to the scientific studies which are to follow.

General Mineralogy.—General mineralogy is taught in the winter term of the Junior year and consists of three exercises per week. A short course dealing with the elements of crystallography is given, together with the physical and chemical characteristics of minerals, especially of the rock-making minerals composing our soils. Laboratory work in blow-pipe analysis and physical deter-

THE BOTANICAL LABORATORY.

ination of minerals follows the crystallography. The course is ranged so that it may be extended as an elective for another rm.

AGRICULTURAL GEOLOGY.—The course in agricultural geology nbraces structural, dynamical, and historical geology, particular tention being paid to the first-mentioned sub-division. A carel study is made of those minerals and rocks of importance in the rmation of soils, of the agencies by which their decomposition effected, and of the compounds which result. In this connecon the instruction is designed to familiarize the student with the esirable mineral and physical features of soils, with those comounds the presence of which is undesirable or which may give ise to a greater or less degree of soil sterility, and with the neans by which such conditions may be avoided or overcome. A roportionate amount of time is devoted to the history of those natural deposits of particular interest to agriculturists; such as nitrate of soda, the German potash salts, and phosphates of various kinds.

Botany.

PROFESSOR MERROW.

The required work in botany for students in the science courses begins in the fall term of the Sophomore year with a course called the biology of plants, which continues three terms. The object of this course is to give the student a knowledge of plant life, by the study of the plants themselves in the laboratory and in the field. Attention is given to representatives of the vegetable kingdom from the lowest to the highest. Some time is given to the determination of species, but the chief work of the course is the study of the structure of the plant, its activities, and its relation to its environment. In short, the course is adapted to the needs of the general student who desires a knowledge of the principles of biology as illustrated by our common plants, and also furnishes a good foundation to the student who is to follow more advanced

work in botany, agriculture, horticulture or medicine. Students wishing to emphasize botany in their choice of studies are given every opportunity to follow lines of work best suited to their needs. In the spring term a three-hour course is given which considers the native flora from an ecological and systematic standpoint. A similar course may be taken on the fall flora if desired. In both these courses emphasis is given to the weed-plants, the grass, clover, and rose families. The study of histology may be followed as a three or a six-hour course. It is believed that excellent advantages are offered to those who wish to elect work in the parasitic fungi of seed plants. The laboratory is provided with a supply of dry and alcoholic material, and collecting-fields for fresh material are near at hand.

Each student is supplied with a compound microscope, a dissecting microscope, re-agents, and small instruments. The laboratory is provided with apparatus for simple physiological experiments, a microtome, paraffin bath, charts, thirty Brendel models, Briosi and Cavara's Parasitic Fungi of Cultivated Plants, Ellis's Fungi Columbiani, Seymour and Earle's Economic Fungi, Arthur and Holway's Uredineae, and a collection of native plants. A good working library and several American and foreign periodicals are an important part of the equipment of the laboratory.

Zoölogy.

PROFESSOR BARLOW.

The work in zoölogy begins with a general course running through the year. Three periods, each two hours long, are given to this work. Beginning with the lowest and most simple forms of life, type forms from each important group are studied. Neatness and precision in dissection and accuracy in drawing are emphasized. During the fall term Protozoans, Coelenterates and Echinoderms are studied. Then follows a study of Worms, Arthropods and Mollusks, and in the spring term the Vertebrates are

taken up. This general course is considered essential to an understanding of the more practical studies which follow in the course, and is required of all Sophomores in the science courses.

Elective courses are offered in anatomy, physiology, embryology, histology, and economic zoölogy. Courses V (A) and III (B) are specially designed to meet the needs of those who are preparing to study medicine or veterinary science, while courses II (A) and IV (B) are specially designed for the latter class. Courses VII (A) and II (A) are designed to be of value to those who are to take up any of the various lines of agriculture and animal industry.

Instruction is largely by laboratory work and lectures. Textbooks are used, and much reference work in standard texts and current periodicals is required.

Especial facilities for the study of the smaller farm animals are afforded by the college farm and experiment station poultry-yards. The experiments now in progress in the "hothouse" plans of raising poultry give unequalled advantages for study in this line. The rapid reproduction of poultry, rabbits, etc., makes them ideal material in studying living processes.

The marine fauna, occurring at a short distance from the college, in the ocean, Narragansett bay and numerous estuaries; the fresh-water fauna, occurring in the springs, ponds, and streams near by; together with an abundant land fauna of the smaller types of mammals, birds, reptiles, amphibians, fish and insects, make the locality especially favorable for field work.

For indoor study the department is well equipped with Leuckart's charts; Zeigler's and other models; manikins elucidating the anatomy of man, horse, and fowl, skeletons of all the domestic animals, a complete series of the principal vertebrated forms, each type being represented by skeleton and mounted skin. The collection includes many rare and remarkable forms from distant parts of the earth, such as the lung fishes, Hatteria, the wingless birds of New Zealand, and many Australian forms. The invertebrate series is represented in a similar way. The collection of Rhode Island birds and mammals is practically complete, and

most of the reptile and batrachian species of the state are represented.

The laboratory is provided with microtome, microscopes, and all necessary apparatus for microscopic work. In the library is the best literature of the subject, and a number of the leading current zoölogical journals are available at the experiment station or by special arrangement.

Psychology.

An elective course in psychology is offered during the winter and spring terms, to Juniors and Seniors. James's Briefer Course is used. Lectures and recitations are supplemented by reading and simple experiments.

Agriculture.

PROFESSOR CARD, DR. WHEELER, DR. CURTICE, MR. TYLER, MR. BURDICK.

The science of agriculture rests upon many sciences. Thorough training in agriculture therefore presupposes a foundation knowledge of these sciences. This foundation must be obtained in other departments of the institution.

The object of an agricultural education is to teach the why of farming, not the how. In other words, it is the especial province of an agricultural college to deal with the principles which underlie the various operations of the farm rather than with the methods of performing those operations. In doing this it does not underestimate the importance of knowing how to do farm work. It recognizes fully that there can be no complete success without such knowledge, but it believes that the average student can better learn these things on a well-managed, up-to-date farm than at an agricultural college. He can there gain experience and earn wages at the same time. At college he is on expense and earning nothing. Some practical operations can be better learned at college than elsewhere. These things the college will try to teach. It will not try to teach a man to become expert in

IN THE CORN-FIELD.

HARVESTING POTATOES.

oeing corn or in digging potatoes. To teach such things would mean that the student must miss many things of value which the college can teach and the farm cannot.

A college course in agriculture should teach a man those things which will enable him to make a success of his profession. It should do more; it should give him an educational training which will enable him to become a leader in the affairs of men. The world needs farmers; it needs men among farmers more. It is calling for such men. It offers them a liberal share of its rewards. Positions are waiting, opportunities are opening, possibilities exist, on every farm. To train men to fill these positions, to embrace these opportunities, to see the possibilities, is the object of the course in agriculture.

Special Course in Farm Practice.—A special course in farm practice was inaugurated in the fall of 1901, occupying six weeks immediately preceding the Christmas holidays. The design of this course is to give clear-cut, practical instruction in agriculture. It aims to emphasize a study of the soil and the plant as constituting the foundation of successful farm practice.

The following subjects were taken up during the course of 1901: soils and fertilizers, how soils are made, kinds of soil, the purchase, mixing, and use of commercial fertilizers; soil management, effects and methods of tillage, humus supply, moisture conservation, rotations, and cover crops; field-crops; fruit-growing; vegetable-gardening; the feeding and breeding of live stock; agricultural physics, mechanics as applied to farm implements, soil physics, weather and frosts; drainage; the plant, its method of life and its enemies; insect life, enemies of the farm and garden; wood-work; iron-work; farm business. Practical men from outside the college aided in the instruction.

This course met with a very favorable reception, attracting to it men from a wide range of experience. The class included practical farmers and farmers' sons, a retired business man, a college graduate, and men with factory and other experience. A most

gratifying fact was that all seemed pleased and felt that they wei well repaid for attending. The expenses are kept as low as poi sible. A certificate of attendance is given at the completion (the course. No entrance examination is required.

SPECIAL COURSE IN POULTRY-KEEPING.— A special course i poultry-keeping continues for six weeks immediately followin the Christmas vacation. The aim of the course is to give pointe(practical instruction in the science and art of poultry-keepin and to present the latest and best methods in practice and mai agement. This pioneer course in poultry-keeping has been i progress for the past five years and has proved uniformly su(cessful.

Theoretical or practical teaching is given in the following sul jects: zoölogy, including anatomy, physiology, and embryology breeds of fowls and their origin; principles of breeding, matin; care, and management; incubation and brooding; chemistry (foods; feeding; egg and flesh production; caponizing; fattening killing, dressing, and marketing; the prevention of diseases poultry plants, including location, drainage, buildings, drawin of plans, specifications, estimates, construction, ventilation an heating; records and accounts; crops raised for poultry or as a adjunct to the business.

The practical work includes individual practice in artifici incubation and brooding, and in preparation of fowls for tl market. Frequent excursions are made to typical poultry plan for a study of their stock and practical management. An annu trip is made to either the Boston or New York poultry show. Oı of the strong features of the course consists in the fact that tl students are brought in contact with a large number of practic poultrymen, who come to the college annually to assist in tl instruction.

Early enrollment is necessary for admission to this course, the number of applications frequently exceeds the number students which can be accommodated. No entrance examinatio:

A NEGLECTED ORCHARD AFTER MODERATE CARE.

are required. Certificates of attendance are given at the close of the course.

Horticulture.

PROFESSOR CARD.

Work in horticulture is designed for students from all courses. It is felt that some knowledge of the subject may very properly form a part of every well-rounded education.

In the introductory course the aim is to discuss principles of general importance to all who have to deal with orchard or garden crops. The courses in pomology and vegetable-gardening are designed to give practical instruction in the growing of fruits and vegetables.

Landscape-gardening is especially recommended to those who seek to appreciate the beautiful in nature or in art. Its aim is to apply the principles of beauty, as evinced in the work of nature, to the art of embellishing grounds.

Forestry touches problems of import to every citizen interested in the public welfare. Owing to the intimate relation between forests and waterflow, the subject is often of more vital importance to the manufacturer than to the farmer.

The subject of plant-breeding appeals chiefly to those interested in the broader problems of biological development and relationship. A careful study of the amelioration and development of plants under culture throws light upon many of the general problems of evolution which are of interest to all thinking students.

The courses in reading and original investigation are designed chiefly for students who wish to make a specialty of horticulture.

Languages.

PROFESSOR WATSON, MISS KENYON, MISS SANDERSON, SR. ALOMÁ.

The subjects grouped under this head are English, German, French, Spanish, and Latin.

English—comprising composition, rhetoric, and literature—may be studied throughout the course. It is required during the first three years. The theory and practice of rhetoric are taught throughout the Freshman year, and the application of rhetorical principles is sought in exercises and themes. The Sophomores make a critical study of certain prose masterpieces and write essays and various short papers. The required work of the Juniors consists largely of a study of the leading poets from Chaucer to Tennyson. Collateral reading is supplied, and students are encouraged to special investigation along literary and historical lines. In the Senior year electives are offered in literature and themes.

In all courses three years of foreign language study are required for graduation; one preparatory and two advanced. It is desirable that two of the three years be spent upon one language.

A three years' course in German has been arranged, which is begun in the Freshman year. As far as possible the language itself is made the medium of instruction; and the subject is studied in grammar work, dictation, conversation, and translation —from English into German and from German into English. The course is carefully graded. As soon as a small vocabulary is acquired, the student begins the reading of simple prose and poetry, passing gradually to more difficult texts.

French may also be studied three years. Six courses are offered. The instruction in this language is similar to that given in German. Grammar, conversation, dictation, translation, and composition are taught.

A two years' course in Spanish is offered. The work is elective and is intended largely to meet the needs of those students who may wish to engage in business in Spanish-speaking countries. Special attention is therefore paid to conversation, reading, letter-writing, and commercial forms.

Latin is elective. The institution offers a two years' course. Should a student wish to pursue the subject farther, he may do so at his own expense, by taking private lessons of the instructor.

Much attention is paid to derivation of words, in order that such study may aid in comprehending the terminology of science.

History and Political Science.

MISS KENYON, DR. HEWES.

United States history is elective. English history is studied in connection with English literature during the Junior year and is required of all candidates for a degree. In the Senior year a course in modern European history from the beginning of the French revolution is offered as an elective. This may also be taken by students who have had the work in United States history. In all of these courses much use is made of the library.

Political science, offered in the fall term, consists of a study of the origin, development and present structure of our government—town, city, county, state and national. Special attention is paid to municipal problems and to the United States constitution. Extensive use of the library is necessary. The winter and spring terms are devoted to political economy, based upon Walker's Advanced Course. In the spring term special consideration is given to the application of the general principles to banking, finance and other present day problems.

Mathematics.

DR. HEWES.

Three courses in mathematics are prescribed for all candidates for a degree; the subjects being higher algebra, solid and spherical geometry and plane trigonometry. The work extends throughout the Freshman year and is of the utmost importance, both as a basis for further work in mathematics and science, and as a means for developing the power of logical reasoning and of exact and concise expression. It is the aim throughout the course to select such problems and applications as shall have direct bearing upon practical subjects.

Analytical geometry and calculus are required of students in the mechanical and electrical engineering courses, in addition to the above, and a number of electives are open to students who propose to make a specialty of mathematics or of any of the sciences which depend largely upon this subject. The course in analytical geometry, occupying the Sophomore year, includes the subject of loci and their equations, the analytical demonstration of many geometrical theorems, and the simpler properties of the conic sections. Analytic geometry of space with elementary discussion of quadric surfaces is studied in the spring term. The differential and integral calculus forms the work of the Junior year. The usual functions are differentiated and Taylor's and McLaurin's formulas developed. The student is taught to work examples and solve problems. The simpler integration methods are discussed. The practical applications of this subject include problems in maxima and minima of functions, the rectification of plane curves, the surfaces and volumes of solids of revolution and formulas of mechanics. The course is kept sufficiently broad to fit students for more advanced work.

Students wishing to prepare further for work along the lines of mechanical or electrical engineering are especially advised to elect courses in analytical mechanics, and differential equations; while those who desire to study pure mathematics may elect work in projective geometry, analytical geometry, theory of equations, theory of functions, etc. Students wishing to do special work in advanced subjects may arrange courses in geometry or analysis with the instructor.

Civil Engineering.

See Civil Engineering, under Courses of Instruction.

Mechanical Engineering.

PROFESSOR DRAKE, MR. RODMAN, MR. KNOWLES, MR. KNIGHT.

The aim of this department is to give sound theoretical and thorough practical training to students who seek to prepare them-

LADD LABORATORY.

THE CARPENTER SHOP.

THE WOOD-WORKING MACHINERY.

selves for useful and responsible positions. The course offered in shop-work will furnish such training as will ensure, other things being equal, marked success in mechanical pursuits subsequent to graduation. The regular four years' course deals with mechanical engineering as applicable to the industries carried on in New England and particularly in Rhode Island. Special attention is given to the designs and the economical operation of shops and mills, and of manufacturing and industrial machinery. The subjects of mechanism, metallurgy, heating and ventilation of buildings, engineering specifications, and laws of contracts are treated by lectures and text-books. The several laboratories are well equipped for working in wood and metals and for the testing of materials used in construction. Students in the course of mechanical engineering receive instruction in bench-work in wood, wood-turning, pattern-making, forging, machine-shop work and mechanical drawing.

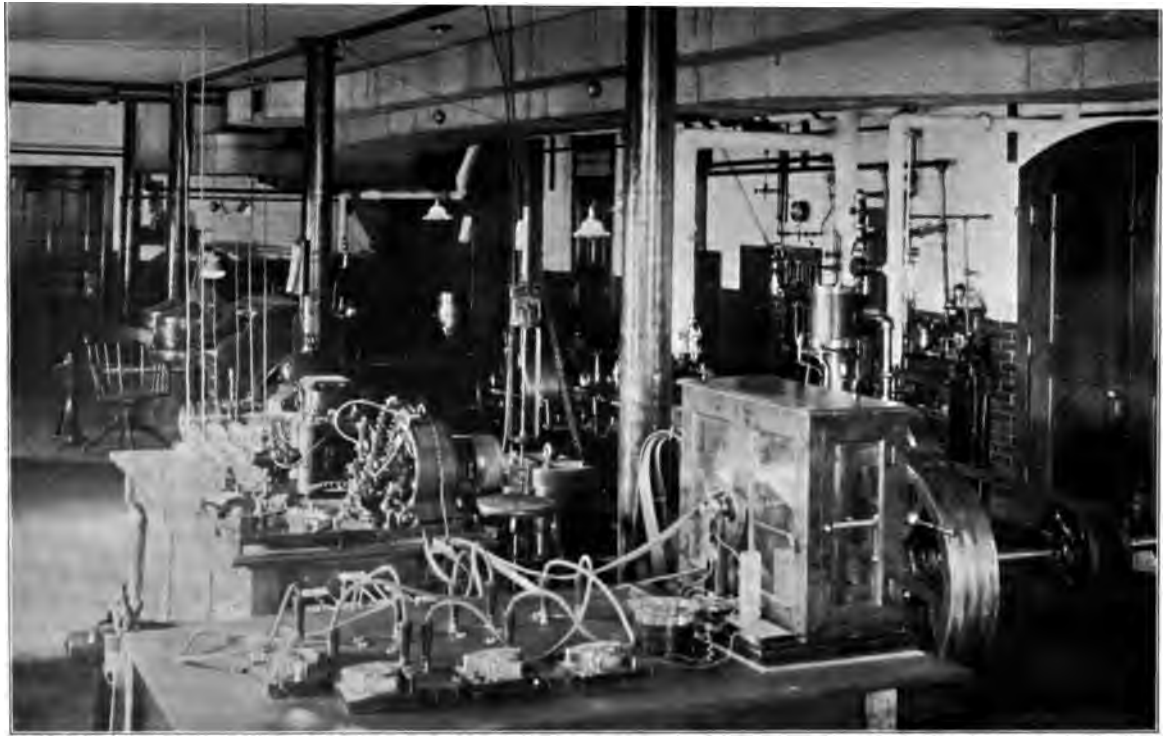
The carpenter shop contains benches and tools sufficient to accommodate twenty-four students at one time. The course is designed to give skill and confidence in working the various kinds of wood, and also to impart a fair knowledge of the principles of building and construction. The wood-turning room contains thirteen lathes, each with its complete set of gouges and turning tools. In the same room are benches for pattern-making, and also power machinery for working wood; such as circular saw, hand-saw, jig-saw, surface-planer, buzz-planer, mortising-machine, dowel-machine and others. All students take wood-turning, and during the period each has practice under the direct charge of the engineer in care of the shop, boiler and engine. The engine is of thirty horse-power. The work in pattern-making given to the students in the mechanical department consists in the making of selected pieces to illustrate the principles of shrinkage, drafts, finish, core-box making, built-up work, and the general requirements of pattern-making.

The forge shop will accommodate twelve students at one time. It contains twelve forges and anvils, a stock-cutter, a bolt-header,

a post-drill, and is well supplied with all the hammers, tongs, and other forge and anvil tools necessary for complete work. A regular course is followed here as in other lines; and for the students of the agricultural course the work is of such a nature as is found about a farm. The various operations of drawing, bending, upsetting, and welding are taught and applied in the making of such useful pieces as staples, hooks, chains, and iron work for farm tools. The students of the mechanical department follow a similar course, but in a direction more suited to the machine shop. Bolts, nuts, machine-forgings, chisels, and lathe tools are made, and afterward put to practical use. Only students in the engineering courses work in the machine shop.

The course here is designed to give a sure knowledge of and intelligent practice in the best modern methods of using the various tools; such as lathes, planers, drills, milling-machines and grinding-machines. A course of hand work at the bench is offered, and includes instruction in chipping, filing, scraping and finishing. Students of former years have made an engine, dynamo, speed lathe, full set of arbors, set of nut arbors, and a variety of other tools.

In experimental engineering the students make tests of engines, boilers, pumps, steam gauges, injectors and a hydraulic ram. The strength of materials is investigated theoretically in class under the head of mechanics of materials, and practically in the laboratory by conducting tests upon specimens of wood, iron, steel, brick, stone, cement, boiler-plate, etc. In hydraulics, water-meters are calibrated, and measurements of water made by orifices and wiers. During the spring term of the Senior year the class in mechanical engineering holds semi-weekly conferences; reports are given upon articles in the industrial magazines and journals, and engineering subjects of general interest are discussed. The following are some of the topics considered: types of steam-boilers, furnaces, boiler-feeders, fuels, lubricants, gas and heat engines, preparation and use of wood, cutting-tools for metals, pumping-machinery.



THE ELECTRICAL ENGINEERING LABORATORY.

Drawing.

PROFESSOR DRAKE, MISS ELDRED.

MECHANICAL DRAWING is required for a period of three years. Students keep notebooks, in which freehand sketches are made from models; and these sketches are afterward worked up into finished drawings. The making of working drawings for some machine completes the course. Practice in tracing and blue printing is given to all students. The course in drawing is designed to aid in the corresponding courses of shop work and not to produce professional draughtsmen.

FREEHAND DRAWING.—Freehand drawing is taught in the fall and spring terms and is required in the fall term, Freshman year. The required work comprises the study of perspective and values from objects, still life, and simple casts. Memory sketches of the objects drawn are expected of each student, who is also required to leave at the college a specimen of his work. The library contains an excellent collection of art books. In addition to the art electives, comprising drawing from still life and the cast, painting in oil, pastel and water-color, and modeling, special work will be arranged for scientific and mechanical students. An hour's study of the history of art, by means of reading, lectures and the use of photographs, with which the studio is well supplied, may be substituted for one hour of course III.

Electrical Engineering.

PROFESSOR SCOTT, MR. RADTKE.

The course in electrical engineering is offered to students who have completed courses I and II in physics.

The studies in electro-technology embrace fundamentally the theory of electricity and magnetism, followed by a thorough treatment of the various technical applications of electricity. These include the theory, design and manipulation of continuous and

[illegible]

[illegible] machine shops, and the [illegible] manufacturing plant [illegible] large [illegible] equipment is [illegible] purposes, [illegible] high-speed engine [illegible] Westing- [illegible] continuous [illegible] and the other eight K. [illegible] several small [illegible] arc and incan- [illegible] and [illegible] meters. Wheatstone [illegible] adequate means are sup- [illegible] testing and comparing electric [illegible] apparatus. The laboratory has [illegible] water-wheel, engine [illegible] repairing and making of [illegible]

[illegible] students who may not be able to [illegible] They will take such sub- [illegible] their intended line of [illegible]

Home Sanitation.

[illegible] to present the application of scientific [illegible] problems of the home. It deals with such questions as the location and structure of the house, water supply, plumbing, disposal of wastes, heating, and ventilation. Instruction is by means of lectures, reading, and inspection visits. The course is given in the fall term and is open to students who have had the first two years of the college work or its equivalent.

STUDENTS IN DRILL HALL.

DRILL ON CAMPUS.

Stenography and Typewriting.

MISS GAGE.

Stenography and typewriting are offered as electives. A thorough knowledge of the common English branches is required of every one taking the course. The Chandler Practical Shorthand and either the touch or sight system of typewriting are taught. The shorthand work may be divided into two parts: first, the perfecting of the knowledge of the system; second, a graded course in dictation. In typewriting, the students are given a series of exercises consisting of words, sentences, phrases, business letters and forms, and other matter selected with reference to its variety and scope. Absolute accuracy is required from the first in both subjects, and particular attention is paid to spelling and punctuation.

Military Science and Tactics.

CAPTAIN SPARROW.

Practical and theoretical instruction in military science and tactics is imparted to all male students not excused by reason of physical disqualification. The war department furnishes for use in this instruction cadet rifles, equipments, sabres, ordnance, and details an officer of the army to act as instructor. The cadets are organized into a company of infantry, and detachments of artillery and signalling. Theoretical instruction is by means of lectures and recitations. The military exercises improve the physique, and are elevating in influence on the mind and conduct of the cadets.

The organization is as follows:

Captains.....	Robert W. Pitkin,
	B. J. Cornell, Adjutant.
Lieutenants.....	R. N. Maxson,
	O. N. Ferry,
	L. Clarke.

1st Sergeant	R. W. Kent.
Sergeants	C. E. Whitmore,
	W. M. Hoxsie,
	W. Goddard, Jr.,
	E. A. Tefft.
Corporals	T. G. Alomá,
	J. Gilman,
	W. A. Ballou,
	F. J. Carley,
	J. F. Schofield,
	B. C. Smith.

Courses of Instruction.

The following courses of instruction are offered in the different partments. All studies required of regular students lead to the gree of Bachelor of Science.

Chemistry.

[. General Chemistry.—Lectures, recitations, and laboratory rk. *Winter and Spring terms, Freshman year; Winter term;* tures and recitations, *2 exercises per week;* laboratory work, *2 rcises of 2 hours each per week. Spring term;* lectures and recitions, *3 exercises per week;* laboratory work, *2 exercises of 2 hours h per week. Required of all candidates for a degree.*

I. Qualitative Analysis.—Basic and acid analysis; analysis of ts. Industrial and natural products. Lectures, recitations, and oratory work. *Fall and Winter terms, Sophomore year; 3 rcises of 2 hours each per week. Required of all candidates for 'egree.*

II. Inorganic Preparations.—*Fall term, Junior year; 3 exises of 2 hours each per week. Required of students in the emical course.*

V. Stoichiometry and Theoretical Chemistry.—Lectures and itations. *Spring term, Sophomore year; 3 exercises per week. quired of all students in science.*

V. (A) Quantitative Analysis.—Gravimetric and Volumetric Anrsis. Analysis of minerals. *Throughout the Junior year; 3 exises of 2 hours each per week. Required of students in the emical course.*

V. (B) Quantitative Analysis (Advanced course).—Analysis minerals, ores, alloys, and industrial products. *Throughout t Junior year; 3 exercises of 2 hours each per week. Required students in the Chemical course.*

VI. Organic Chemistry.—Lectures, recitations, and laboratc work. *Fall and Winter terms, Junior year; lectures and reci tions, 3 exercises per week;* laboratory work, *1 exercise of 2 hoı per week. Required of students in the Chemical course.*

VII. Organic Preparations.—*Spring term, Junior year; 3 ercises of 2 hours each per week. Required of students in Chemical course.*

VIII. Sanitary Chemistry.— *Winter term, Junior year; 2 ercises of 2 hours each per week. Required of students in Chemical course.*

IX. Mineralogy and Blowpipe Analysis.— *Winter term, Jun year; 3 exercises of 2 hours each per week. Required of students the Chemical course.*

X. Gas Analysis.—*Spring term, Junior year; 1 exercise of hours per week. Required of students in the Chemical course.*

XI. Assaying.— *Spring term, Junior year; 1 exercise of hours per week. Required of students in the Chemical course.*

XII. Industrial Chemistry.—Lectures and recitations. *Spri term, Junior year, and Fall term, Senior year; 3 exercises per we Required of students in the Chemical course.*

XIII. Organic Chemistry (Advanced course).—*Fall and Win terms, Senior year; 3 exercises per week. Required of stude in the Chemical course.*

XIV. Theoretical Chemistry (Advanced course).—Lectur recitations, and laboratory work. *Fall term, Senior year;* lectu and recitations, *3 exercises per week;* laboratory work, *2 exerc*

of 2 hours each per week. Required of students in the Chemical course.

XV. Physiological Chemistry and Toxicology.—*Spring term, Senior year; 3 exercises of 2 hours each per week; elective.*

XVI. Textile Coloring.—*Winter and Spring terms, Senior year; 3 exercises per week. Optional for students in the Chemical course with Chemistry XVIII and XIX as alternatives.*

XVII. Agricultural Chemistry.—*Winter and Spring terms, Senior year; 3 exercises per week. Required of students in the Chemical course.*

XVIII. Electro-Chemistry.—*Winter term, Senior year; 3 exercises per week. Optional for students in the Chemical course with Chemistry XVI as alternative.*

XIX. Metallurgy.—Lectures and recitations. *Spring term, Senior year; 3 exercises per week. Optional for students in the Chemical course with Chemistry XVI as alternative.*

XX. Thesis Work.—*Throughout the Senior year. Required of students in the Chemical course.*

Physics.

I. General Course.—Study of mechanics, hydraulics, pneumatics and heat, *Fall term;* electricity and magnetism, *Winter term;* sound and light, *Spring term, Freshman year;* recitations, *2 exercises per week;* laboratory work, *1 exercise per week. Required of all candidates for a degree.*

II. Advanced Physics.—*Throughout the year; 3 exercises per week. Required of Sophomores in Engineering courses.*

III. Elementary Photography.—A course of lectures and recitations upon the optics and chemistry of photography, together with practical photographic work. *Spring term;* lectures, *2 exercises per week;* laboratory work, *1 exercise per week; elective, open to all students.*

IV. Advanced Photography.—A course of lectures on photomicrography, the making of lantern slides and bromide enlargements, and the manipulation of the optical lantern. *Spring term* lectures, *1 exercise per week;* laboratory work, *2 exercises per week elective, open to students who have taken course I.*

Physiography.

*II. Tarr's Physical Geography, with required reading fro reference books.—Laboratory work and excursions. *Fall ter Freshman year; 3 exercises per week: Winter term, Freshm year; 1 exercise per week. Required of all candidates for a degr*

III. Mineralogy. See Chemistry, IX.

Geology.

I. Agricultural Geology.—Lectures and recitations. *Wint term, Senior year; 2 exercises per week. Elective.*

Botany.

I. Biology of Plants.—The general principles of biology ar illustrated by our common plants. Laboratory, reading and lectures. *Throughout the Sophomore year; 3 exercises of 2 hours each per week. Required of students in the Science courses.*

II. Fungi.—A study of fungi with special reference to parasitic forms of economic importance. Laboratory, reading and lec tures. *Elective; open to students who have taken course I. Hour arranged with instructor.*

III. Histology.—Laboratory, reading and lectures. The labo ratory work includes methods of imbedding, sectioning, stainin and mounting. *Elective; open to students who have taken course I Hours arranged with instructor.*

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* Course I is given in the preparatory department.

IV. A study of the Spring Flora of Kingston, with practice in the identification of species. Special attention is given to the rose family. Field and laboratory, *Spring term; 3 exercises per week. Elective; open to students who have taken course I.*

V. A study of the Fall Flora of Kingston, with practice in the identification of species. Special attention is given to weed-plants, grasses, and the clover family. Field and laboratory, *Fall term; 3 exercises per week. Elective; open to students who have taken course I.*

VI. Plant-Life.—A study of the plant and its environment. The functions of root, stem and leaf, reproduction, and plant diseases are treated. Lectures and reading, illustrated by models, charts, demonstrations, and field and laboratory work. *A six weeks' course given in the winter school of Farm Practice.*

By consulting the instructor other arrangements may sometimes be made for those desiring to elect work in botany.

Zoölogy.

I. (B) Animal Biology.—Fall term, laboratory study of Amœba, Paramœcium, Euglenia, Grantia, Metridium; Winter term, Asterias, Nereis, Tænia, Ascarias, Gryllus, and Astacus; Spring term, Amphioxus, Mustelinus, Rana, Felis, and Columba. *Throughout the Sophomore year; 3 exercises of 2 hours each per week. Required in the Science courses and a prerequisite for courses IV (A), VI, and III (B).*

II. (A) Anatomy of the Horse.—Study of the skeleton and model and dissection. *Winter term; 3 exercises per week. Elective.*

III. (B) Physiology.—Comparative physiology of mammals. *Winter and Spring terms; 2 recitations and 1 laboratory exercise of 2 hours per week. Elective; open to students who have taken courses V (A) and I (B).*

IV. (A) Embryology.—The development of the chick an frog. *Spring term; 3 exercises of 2 hours each per week. Elective open to students who have taken course I (B).*

IV. (B) Poultry and Poultry Parasites.—*Winter term; 3 exercises per week. Elective.*

V. (A) Vertebrate Anatomy.—Detailed study of the cat. *Fall term; 3 exercises of 2 hours each per week. Elective.*

VI. Normal Histology and Histological Methods.—*Winter term; 3 exercises of 2 hours each per week. Elective; open to students who have taken course I (B).*

VII. (A) Economic Entomology.—Study of forms of special interest to the agriculturist. *Fall term; 3 exercises of 2 hours each per week. Elective.*

VIII. (A) More advanced work in special topics may be taken up by special arrangement with the instructor.

Psychology.

I. Elementary Course.—Lectures, recitations, simple laboratory experiments. *Winter and Spring terms; 3 exercises per week. Elective for Juniors and Seniors.*

Agriculture.

I. Soils and fertilizers.—Origin and formation of soils; chemical and physical properties; temperature; moisture; effects of tillage and other conditions upon fertility. Fertilizers, source, classification and effects; economy in using; application and calculation of formulas. *Fall term, Junior year; 3 exercises per week. Required of Agricultural students.* Dr. Wheeler.

II. Farm Crops.—Needs of the plant; maintenance of fertility and humus; grains; grasses; clovers; forage crops and roots. *Winter term, Junior year; 3 exercises per week. Required of Agricultural students.* Professor Card.

FILLING THE SILO.

III. Farm Equipment.—Selection and equipment of farms; buildings, fences, roads, water supply, farm power, field machinery and appliances. *Spring term, Junior year; 3 exercises per week. Required of Agricultural students not taking Horticulture V.* Professor Card and Mr. Burdick.

IV. Farm Management.—Farm capital, permanent and floating; distribution of capital; labor and its efficiency; profit or loss from the use of machinery; farm advertising; inventory and accounts; types of farming considered from a business standpoint. *Fall term; 2 exercises per week. Elective.* Professor Card.

V. Rural Economics.—History and development of agriculture; influence of location, climate and other factors upon the agriculture of a country; relation of agriculture to other industries, and to the body politic; farm law. *Winter term; 2 exercises per week. Elective.* Professor Card.

VI. Farm Surveying and Drainage.—Mapping of fields; location of drains; leveling and construction of farm drains. *Fall term; 2 exercises per week. Elective.* Mr. Tyler.

VII. Farm Animals.—Principles governing the choice and breeding of animals. Types and breeds of different kinds of animals. *Fall term; 3 exercises per week. Elective.* Dr. Curtice.

VIII. Farm Animals.—Principles of feeding, nutrition, assimilation and excrementation; selection; composition and digestibility of food-stuffs; feeding standards and compounding of rations; practice in the preparation of food and methods of feeding; principles of hygiene and management. *Winter term; 3 exercises per week. Elective.* Dr. Curtice.

IX. Dairy Husbandry.—Care and management of dairy cattle; buildings and equipment; milk production, composition, management, aeration, pasteurization, sterilization, testing, preservation, transportation; creaming. *Spring term; 3 exercises per week. Elective.* Dr. Curtice.

X. Poultry Raising.—Domestic fowls—kinds, breeds, selection and breeding; buildings—location and arrangement, construction and furnishing, ventilation, yards and parks; foods and feeding; care and management, production of eggs and flesh, fattening; dressing and marketing; incubation, natural and artificial; rearing; diseases and enemies; caponizing. *Spring term; 3 exercises per week. Elective.* Dr. Curtice.

XI. Agricultural Experimentation.—Objects, methods and results of agricultural experimentation; precautionary measures; sources of error; interpretation of results. *Spring term; 2 exercises per week. Elective.* Dr. Wheeler.

XII. Agricultural Literature.—Seminary courses in the literature of special subjects. *By arrangement.*

XIII. Original Investigations.—For advanced students only. *By arrangement.*

Horticulture.

I. Principles of Horticulture.—A discussion of fundamental principles underlying horticultural operations in orchard, garden and greenhouse. *Fall term; 2 recitations and 1 laboratory period per week. Elective.*

II. Pomology.—Lectures and supplementary reading. Designed to give practical instruction in fruit-growing. *Winter term; 3 exercises per week. Elective.*

III. Vegetable-Gardening.—Methods of growing garden vegetables in the open ground and under glass. *Winter term; 3 exercises per week. Elective.*

IV. Landscape-Gardening.—The principles underlying landscape-gardening as a fine art, with discussion of the ornamentation of home-grounds, school-grounds, cemeteries, parks, highways and other public grounds. Lectures and supplementary reading. *Fall term; 3 exercises per week. Elective.*

V. Forestry.—General importance of forests, their influence on climate and water supply, methods of regeneration, and systems of forest management. Lectures and supplementary reading. *Spring term, Junior year; 3 exercises per week. Required of Agricultural students not taking Agriculture III.*

VI. Plant-Breeding.—A discussion of the development of plants under culture, with especial reference to problems of heredity, environment, variation, selection and evolution. Lectures and supplementary reading. Open to students who have had course I in botany. *Fall term; 2 exercises per week. Elective.*

VII. Horticultural Literature.—A seminary course designed to give familiarity with horticultural writings, ancient and modern. *By arrangement. Elective.*

VIII. Original Investigation.—For advanced students only. *By arrangement. Elective.*

English.

*II. Rhetoric.—Text-book study and practical application of rhetorical principles in themes and exercises. *Throughout the Freshman year; 2 exercises per week. Required of all candidates for a degree.*

III. Critical study of certain prose masterpieces, with essays and various short papers. *Throughout the Sophomore year; 2 exercises per week. Required of all candidates for a degree.*

IV. General English Literature.—Largely a study of Chaucer, Shakespeare, Milton, Wordsworth, Tennyson, Browning, and their times. Essays and collateral reading required. *Throughout the Junior year; 2 exercises per week. Required of all candidates for a degree.*

V.—Special English Literature.—Study of special periods and

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*Course I, Elementary English, is given in the preparatory school.

authors. *Throughout the year; 3 exercises per week. 1 open to students who have taken courses I–I V or their equiv*

VI. Special Work in Themes. *Throughout the year. 1 open to students who have taken courses I–I V or their equiv*

German.

I. Elementary Course.—Grammar, dictation, conv reading of easy prose and poetry. *Fall term, Freshman exercises per week; Winter and Spring terms; 4 exercises p Required of all candidates for a degree who do not offer Fre*

II. Reading of intermediate texts, composition, conv *Fall term, Sophomore year; 3 exercises per week. Open to who have taken course I or its equivalent, and required of a dates for a degree who do not offer French.*

III. German Classics.—*Winter and Spring terms, So year; 3 exercises per week. Open to students who have take I and II or their equivalent, and required of all candidat degree who do not offer French.*

IV. Goethe's Meisterwerke (Bernhardt).—*Fall term; cises per week. Elective; open to those who have taken co III or their equivalent.*

V. Study of Schiller or Heine.—*Winter term; 3 exer week. Elective; open to those who have taken courses I–II equivalent.*

VI. Study of Freytag.—*Spring term; 3 exercises p Elective; open to those who have taken courses I–III or their lent.*

VII. Scientific German.—Special work assigned by professors. *Elective; open to those who have taken course or their equivalent.*

French.

I. Elementary Course.—Grammar, dictation, conversation, reading of easy prose and poetry. *Fall term, Freshman year; 5 exercises per week: Winter and Spring terms; 4 exercises per week. Required of all Freshmen not taking German or Latin and not offering French for admission.*

II. Reading of intermediate texts, composition, conversation.—*Throughout the Sophomore year; 3 exercises per week. Required of all candidates for a degree who do not offer German.*

III. French Classics.—*Throughout the year; 3 exercises per week. Elective; open to students who have taken courses I and II.*

IV. Lyrics of the Nineteenth Century.—*Fall term; 3 exercises per week. Elective; open to those who have taken courses I and II or their equivalent.*

V. Study of Victor Hugo.— *Winter term; 3 exercises per week. Elective; open to those who have taken courses I and II or their equivalent.*

VI. Scientific French.—Special work assigned by different professors. *Elective; open to those who have taken courses I and II or their equivalent.*

Spanish.

I. Elementary Course.—Grammar (Loiseaux or Manning), dictation, conversation, letter-writing, commercial forms, reading of easy prose: Reader (Loiseaux or Matzke), Doce Cuentos Escogidos (Fontaine), El Pájaro Verde (Valera). *Elective. Throughout the year; 3 exercises per week.*

II. Advanced Course.—Composition (Ford or Ramsey). Reading of more difficult texts: Gil Blas (translation of El Padre Isla); Ó Locura Ó Santidad (Echegaray); Doña Perfecta, Marianela (Galdós); El Capitán Veneno (Alarcón). *Elective. Throughout the year; 3 exercises per week.*

Latin.

*II. Cæsar or selections from various Latin authors. *Elective. Throughout the year; 3 exercises per week.*

History and Political Science.

†II. Constitutional and Political History of the United States. Based on Hart's Epochs of American History.—Lectures, recitations, readings and reports.—*Throughout the year; 3 exercises per week. Elective.*

III. English History.—This subject forms a part of the required work in English IV.

IV. Modern European History from the beginning of the French Revolution.—*Throughout the year; 3 exercises per week. Elective for Juniors and Seniors.*

V. Science of Government.—Town, city, county, state and United States. Their origin, development and practices. Critical analysis of the Constitution of the United States. Lectures, recitations and reports. *Fall term, Senior year; 3 exercises per week. Required of all candidates for a degree.*

VI. Political Economy.—General principles. Based on Walker's Advanced Course.—Lectures, recitations, discussions, readings, essays. Consideration of present day problems. *Winter and Spring terms, Senior year; 3 exercises per week. Required of all candidates for a degree.*

Mathematics.

‡IV. College Algebra (Taylor).—The theory of limits; differentiation; development of functions in series; permutations and combinations; determinants. *Fall term, Freshman year; 4 exercises per week. Required of all candidates for a degree.*

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* Course I, Elementary Latin, is given in the preparatory school.
† Course I, General History, is given in the preparatory school.
‡ Courses I, II and III are given in the preparatory school.

V. Plane Trigonometry (Bowser).—The derivation of the fundamental formulas; logarithms; the solution of right and oblique triangles; practical problems. *Spring term, Freshman year; 3 exercises per week. Required of all candidates for a degree.*

VI. Solid Geometry (Phillips and Fisher).—Lines and planes in space; polyhedrons; the cylinder, cone and sphere; measurement of solids; numerical examples and original demonstrations. *Winter term, Freshman year; 3 exercises per week. Required of all candidates for a degree.*

VII. Analytical Geometry (Ashton).—Coördinate systems; the point, line and circle; relation between different coördinate systems; the equation of the first degree, the straight line; the general equation of the second degree and simple properties of the conic sections. *Fall and Winter terms, Sophomore year; 3 exercises per week. Required of students in the Engineering courses.*

VII. (A) Solid Analytical Geometry (Ashton).—Coördinates of points in ordinary space; the line, plane and quadric surfaces. *Spring term, Sophomore year; 3 exercises per week. Required of students in Engineering courses.*

VIII. Calculus (Osborne).—The differentiation of the ordinary functions, and development of Taylor's and Maclaurin's formulas. Integration of fundamental forms; definite integrals; applications to geometry and mechanics; curve tracing. *Throughout the Junior year; 3 exercises per week. Required of students in the Engineering courses.*

IX. Differential Equations (Murray).—*Senior year; 2 exercises per week. Elective for students who have completed course VIII.*

X. Analytical Mechanics.—*Senior year; 3 exercises per week. Elective for students who have completed course VIII.*

Civil Engineering.

I. Surveying.—Theory and practice; problems in the use and adjustment of modern surveying instruments; land surveying;

computations and plotting. *Fall term; 1 classroom exercise, 2 exercises of three hours each of field-work per week. Elective.* Mr. Tyler.

II. Land Drainage (see Agriculture).—Sources of water; necessity of drainage; kinds of drains; action of drains; planning systems of drainage; drain tiles; construction and care of drains. *Fall term; 2 exercises per week. Elective.* Mr. Tyler.

III. Surveying.—City, including highway, street, and railway. Theory and practice. *Spring term; 1 classroom exercise, 2 exercises of field-work per week. Elective for students who have taken course I.* Mr. Tyler.

IV. Descriptive Geometry (see Mechanics III).—Professor Drake.

V. Strength of Materials (see Mechanics XVIII).—Professor Drake.

VI. Hydraulics (see Mechanics XXI).—Professor Drake.

VII. Construction and Design of Framed Structures (Du Bois, Stresses in Framed Structures).—This course is open to engineering students who have qualified in the underlying mathematical and mechanical principles. It includes the computation of stresses in roofs and bridges by analytical and graphical methods and the study in detail of the more important types of bridge trusses. In the latter half of the course the structural principles are applied to designing and erection of work if time permits. *Winter and Spring terms; 3 exercises per week. Elective.* Dr. Hewes.

VIII. Masonry Structures (Baker).—This course deals with the materials of masonry, including brick, stone, lime, and cement; the theory of masonry structures, including foundations for buildings, bridges and piers; the construction of retaining walls, culverts, bridge abutments; masonry dams and arches. The student is directed to important articles in the current literature

of the subject, and laboratory work is performed at intervals as facilities and ability of the student permit. *Winter term; 2 exercises per week. Elective.* Dr. Hewes.

IX. Road Building.—This is a short course in practical highway work. It includes the application of engineering principles to the preliminary survey and estimate of cost of building and rebuilding roads in town and country. The subjects of surfacing old and new roads with gravel or stone and the drainage and repair of them receive particular emphasis. The details of staking out work, placing catch basins, curbs, culverts, etc., and the crushing and rolling of stone are discussed. The student is directed to state and government reports and required to read selected topics in the literature of the subject. *Spring term; 2 exercises per week. Elective.* Dr. Hewes.

Mechanics.

I. Mechanical Drawing.—Elementary principles, use of tools, inking in, geometrical drawing. *Fall and Winter terms, Sophomore year; 2 periods of 2 hours each per week required for a degree in Engineering courses.*

II. Mechanical Drawing.—Screw threads, bolts and nuts, shade lines, line shading. *Spring term, Sophomore year; 2 periods of 2 hours each per week. Required for a degree in Engineering courses.*

III. Mechanical Drawing.—Descriptive geometry. *Spring term, Sophomore year; 3 periods of 2 hours each per week. Required for a degree in Engineering courses.*

IV. Mechanical Drawing.—Machine details and parts, tracing, blue printing. *Fall term, Junior year; 4 periods of 2 hours each per week. Required for a degree in Mechanical Engineering.*

V. Mechanical Drawing.—Elements of machine design. *Winter term, Junior year; 3 periods of 2 hours each per week. Required for a degree in Engineering courses.*

VI. Mechanical Drawing.—Practical machine design. *Fall term, Senior year; 3 periods of 2 hours each per week. Required for a degree in Engineering courses.*

VII. Mechanical Drawing.—Elements of topographical drawing as introductory to land surveying.— *Winter term; 1 period of 2 hours per week. Required as introductory to course II, Civil Engineering.*

VIII. Wood-working.—Use of tools, bench work and carpentering. *2 exercises of 3 hours each per week. Required for a degree in Engineering courses. Students must receive credit for this course before beginning the work of the Junior year.*

IX. Wood-working.—Wood-turning. *Spring term; 3 exercises of 3 hours each per week. Required for a degree in Engineering courses. Students must receive credit for this course before beginning the work of the Junior year.*

X (A). Pattern Making.—*Fall term, Junior year; 2 exercises of 2 hours each per week. Required for a degree in Mechanical Engineering.*

XI. Shopwork.—Forging, drawing, bending, welding and tool dressing. *Winter term, Junior year; 2 exercises of 3 hours each per week. Required for a degree in Mechanical Engineering.*

XIII. Machine-shop Practice.—*Spring term, Junior year, and Fall term, Senior year; 3 exercises of 3 hours each per week for students in Mechanical Engineering. Winter and Spring terms, Junior year; 2 exercises of 3 hours each per week for students in Electrical Engineering.*

XIV. Wood-carving.—Care and use of tools, geometrical motives, diaper patterns, incised carving, flat and curved surface carving, historic ornament, low relief and high relief. *1 exercise of 3 hours per week. Elective.*

XV. Steam Boilers.—Types, construction, strength, uses and management. *Winter term, Senior year; 3 exercises per week. Required for a degree in Mechanical Engineering.*

XVI. Thermodynamics.—As directly applied to the steam engine. Simple and compound engines. *Winter term, Junior year; 3 exercises per week. Required for a degree in Mechanical Engineering.*

XVII. Steam Engineering.—Valve gears, regulators, condensers, power plants, tests. *Spring term, Junior year; 3 exercises per week. Required for a degree in Mechanical and Electrical Engineering.*

XVII (A). Transporting Machinery.—*Spring term, Senior year; 3 exercises per week. Required for a degree in Mechanical Engineering.*

XVIII. Strength of Materials.—Wood, iron, steel, alloys, brick, stone and cements. *Spring term, Junior year; 3 exercises and 1 laboratory exercise of 2 hours per week. Required for a degree in Mechanical Engineering.*

XIX. Theoretical and Applied Mechanics.—Bodies at rest and in motion, friction of rest and motion, energy, work and power. *Fall term, Senior year; 4 exercises per week. Required for a degree in Mechanical Engineering.*

XX. Graphic Statics of Structures and Machines.—*Winter term, Senior year; 4 exercises per week. Required for a degree in Mechanical Engineering.*

XXI. Hydraulics.—Flow of water through pipes, orifices and sewers. Measurement of flow of rivers and streams. Water power and water supply. *Spring term, Senior year; 4 exercises per week. Required for a degree in Engineering courses.*

XXII. Engineering Laboratory.—Physical tests of materials used in industries and in construction. Tests of machines and apparatus. *Throughout the Senior year; 2 lectures and 1 laboratory exercise per week. Required for a degree in Mechanical Engineering.*

XXIII. Mill Construction.—Lectures upon the structural d velopment and design of shops and mills. *Fall term, Senior yea 3 exercises per week. Required for a degree in Engineering cours*

XXIII (A). A mill equipment. *Winter term, Senior year; 3 e ercises per week. Elective.*

XXIV. Metallurgy.—Cast iron, wrought iron, steel, copper, ti lead, zinc and alloys. *Fall term, Junior year; 3 exercises per wee Required for a degree in Engineering courses.*

XXV. Textile Machinery.—Lectures upon types of machine and processes for the manufacture of cotton and woolen good *Spring term, Senior year; 3 exercises per week. Required for a d gree in Mechanical Engineering.*

Drawing and Modeling.

I. Freehand Drawing.—Drawing in charcoal from object Memory sketches required. *Fall term, Freshman year; 1 exerci of 2 hours per week. Required of all candidates for a degree.*

II. Drawing in Charcoal from Still Life and the Cast. *Spri term; 3 exercises of 2 hours per week. Elective.*

III. Drawing in charcoal from still life and the cast.—*Fc term; 3 exercises of 2 hours per week. Elective.*

IV. Modeling.—*Fall term; 3 exercises of 2 hours per wee Elective.*

Electrical Engineering.

I. Electrical Measurements and Electrical Machinery.— course of lectures and laboratory work upon electrical measur ments, testing of instruments, dynamos and motors. *Througho the Junior year; 4 exercises per week for students in Electric Engineering; 3 exercises per week for students in Mechanical Engi eering.*

A CORNER IN THE STUDIO.

II. Applied Electricity.—A course of lectures accompanied by laboratory work upon modern practical applications of electricity. *Throughout the Senior year; 4 exercises per week for students in Electrical Engineering. Other students may elect the work as a three-hour course.*

Home Sanitation.

I. A course of lectures, reading, and inspection visits. Situation and structure of the house; water supply; plumbing; disposal of waste; heating and ventilation. *Fall term; 3 exercises per week. Elective.*

Stenography.

I. Elementary Course.—Instruction in principles; dictation. *Throughout the year; 4 exercises per week. Elective.*

II. Advanced Course.—Dictation, including the following: business letters, legal documents, terms used, deeds, wills, mortgages, contracts, declarations, etc.; hints useful in office work; general dictation. *Throughout the year; 3 periods per week. Elective.*

The Courses of Study Leading to a Degree.

Freshman Year: introductory to all courses.

Fall.		Winter.		Spring.	
lish II‡	2	English II‡	2	English II‡	2
man I*	5	German I*	4	German I*	4
hematics IV	4	Mathematics VI	3	Mathematics V	3
sics I	3	Physics I	3	Physics I	3
siography II	3	Physiography II	1	Chemistry I	5
ehand Drawing I	1	Chemistry I	4		
itary Drill and Tactics.		Military Drill and Tactics.		Military Drill and Tactics.	

Sophomore Year: for Engineering Courses.

glish III	2	English III	2	English III	2
man II*	3	German III*	3	German III*	3
emistry II	3	Chemistry II	3	Physics II	3
ysics II	3	Physics II	3	Mathematics VII (A)	3
thematics VII	3	Mathematics VII	3	Mechanics III	3
ehanics I	2	Mechanics I	2	Mechanics II	2
itary Drill and Tactics.		Military Drill and Tactics.		Military Drill and Tactics.	

Sophomore Year: for Science Courses.

lish III	2	English III	2	English III	2
man II*	3	German III*	3	German III*	3
nistry II	3	Chemistry II	3	Chemistry IV	3
ogy I (B)	3	Zoölogy I (3)	3	Zoölogy I (B)	3
ny I	3	Botany I	3	Botany I	3
tive†	3	Elective†	3	Elective†	3
ary Drill and Tactics.		Military Drill and Tactics.		Military Drill and Tactics.	

By advice of the committee on courses of study, French may be substituted for German.

With the advice of the committee on courses of study, the student chooses his electives in the courses described on pages 47–65.

The Roman numerals refer to the course numbers; see pages 47–65.

Junior Year: Engineering Courses.

	Fall.		Winter.		Spring.	
Mechanical Engineering.	English IV*	2	English IV†	2	English IV*	2
	Mathematics VIII	3	Mathematics VIII	3	Mathematics VIII	3
	Electrical Engineering I	3	Electrical Engineering I	3	Electrical Engineering I	3
	Mechanics IV	4	Mechanics V	3	Mechanics XIII	3
	Mechanics X A	2	Mechanics XI	2	Mechanics XVII	3
	Mechanics XXIV	3	Mechanics XVI	3	Mechanics XVIII	4
	Military Drill and Tactics.		Military Drill and Tactics.		Military Drill and Tactics.	
Electrical Engineering.	English IV	2	English IV	2	English IV	2
	Mathematics VIII	3	Mathematics VIII	3	Mathematics VIII	3
	Electrical Engineering I	4	Electrical Engineering I	4	Electrical Engineering I	4
	Mechanics XXIV	3	Mechanics XIII	2	Mechanics XIII	2
	Military Drill and Tactics.		Mechanics V	3	Mechanics XVII	3
	Elective*	5	Military Drill and Tactics.		Military Drill and Tactics.	
			Elective*	3	Elective*	3

Junior Year: Science Courses.

Agriculture.	English IV	2	English IV	2	English IV	2
	Agriculture I	3	Agriculture II	3	Agriculture III or Horticulture V	3
	Military Drill and Tactics.		Military Drill and Tactics.		Military Drill and Tactics.	
	Elective*	12	Elective*	12	Elective*	12
	(At least eight hours must be chosen from subjects bearing directly on agriculture.)		(At least eight hours must be chosen from subjects bearing directly on agriculture.)		(At least eight hours must be chosen from subjects bearing directly on agriculture.)	

* With the advice of the committee on courses of study the student chooses his electives from the courses described on pages 47-65.

† The Roman numerals refer to the course numbers; see pages 47-65.

Junior Year: Science Courses.

	Fall.	*Winter.*	*Spring.*
Biology.	English IV† 2	English IV† 2	English IV† 2
	Biology 6	Biology 6	Biology 6
	(Credit will be given for all courses in Zoölogy and Botany, and for Horticulture VI.)	(Credit will be given for all courses in Zoölogy and Botany, and for Horticulture VI.)	(Credit will be given for all courses in Zoölogy and Botany, and for Horticulture VI.)
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective* 9	Elective* 9	Elective* 9
Chemistry.	English IV 2	English IV 2	English IV 2
	Chemistry V (A) 3	Chemistry V (A) 3	Chemistry V (A) 3
	Chemistry V (B) 3	Chemistry V (B) 3	Chemistry V (B) 3
	Chemistry VI 4	Chemistry VI 4	Chemistry VII 3
	Chemistry III 3	Chemistry VIII 2	Chemistry X 1
	Military Drill and Tactics.	Chemistry IX 3	Chemistry XI 1
	Elective (not a chemical subject)* 3	Military Drill and Tactics.	Chemistry XII 3
		Elective (not a chemical subject)* 3	Military Drill and Tactics.
			Elective (not a chemical subject)* 3
General Science.	English IV 2	English IV 2	English IV 2
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective* 15	Elective* 15	Elective* 15
	(A minimum of six hours of science must be chosen.)	(A minimum of six hours of science must be chosen.)	(A minimum of six hours of science must be chosen.)

* With the advice of the committee on courses of study the student chooses his electives from the courses described on pages 47-65.

† The Roman numerals refer to the course numbers; see pages 47-65.

Senior Year: Engineering Courses.

	Fall.	*Winter.*	*Spring.*
Mechanical Engineering.	Political Science V†..... 3	Political Science VI†..... 3	Political Science VI†..... 3
	Mechanics VI..... 3	Mechanics XX..... 4	Mechanics XVII (A)..... 3
	Mechanics XIX..... 4	Mechanics XV..... 3	Mechanics XXI..... 4
	Mechanics XIII..... 3	Mechanics XXII..... 2	Mechanics XXII..... 2
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective..... 3	Elective..... 3	Elective..... 3
	(To be chosen from the following: Mechanics XXIII, Electrical Engineering II, Mathematics IX, X, Civil Engineering.)	(To be chosen from the following: Mechanics XXIII (A), Electrical Engineering II, Mathematics IX, X, Civil Engineering.)	(To be chosen from the following: Mechanics XX[illegible], Electrical Engineering [illegible], Mathematics XI, Civil Engineering.)
Electrical Engineering.	Political Science V..... 3	Political Science VI..... 3	Political Science VI..... 3
	Electrical Engineering II... 4	Electrical Engineering II. 4	Electrical Engineering II.. 4
	Mechanics VI..... 3	Mechanics XV..... 3	Inspection Excursions.
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective..... 6	Elective..... 6	Elective..... 6
	(At least three hours must be chosen from the departments of Mathematics, Mechanics or Civil Engineering.)	(At least three hours must be chosen from the departments of Mathematics, Mechanics, or Civil Engineering.)	(At least three hours must be chosen from the departments of Physics, Mechanics, Mathematics, or Civil Engineering.)

Senior Year: Science Courses.

Agriculture.	Political Science V..... 3	Political Science VI..... 3	Political Science VI..... 3
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective*.....14	Elective*.....14	Elective*.....14
	(At least eight hours must be chosen from subjects bearing directly on agriculture.)	(At least eight hours must be chosen from subjects bearing directly on agriculture.)	(At least eight hours must be chosen from subjects bearing directly on agriculture.)

* With the advice of the committee on courses of study, the student chooses his electives from the courses described on pages 47-65.

† The Roman numerals refer to the course numbers; see pages 47-65.

Senior Year: Science Courses.

	Fall.	*Winter.*	*Spring.*
Biology.	Political Science V†..... 3	Political Science VI†..... 3	Political Science VI†..... 3
	Biology..... 9	Biology..... 9	Biology..... 9
	(Credit will be given for all courses in Zoölogy and Botany, and for Horticulture VI.)	(Credit will be given for all courses in Zoölogy and Botany, and for Horticulture VI.)	(Credit will be given for all courses in Zoölogy and Botany, and for Horticulture VI.)
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective*..... 3	Elective*..... 3	Elective*..... 3
Chemistry.	Political Science V..... 3	Political Science VI..... 3	Political Science VI..... 3
	Chemistry XIII..... 3	Chemistry XIII.... 3	Chemistry XVII..... 3
	Chemistry XIV..... 5	Chemistry XVII..... 3	Special Chemistry..... 3
	Chemistry XII..... 3	Chemistry XVI or XVIII. 3	Chemistry XVI or XIX.
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective..... 3	Elective..... 3	Elective..... 3
	(To be chosen from the following: History II, IV, French, German.)	(To be chosen from the following: History II, IV, French, German, Psychology.)	(To be chosen from the following: History II, IV, French, German, Psychology, Chemistry XV.)
General Science.	Political Science V..... ... 3	Political Science VI..... 3	Political Science VI..... 3
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective*.....12	Elective*.....12	Elective*.....12
	(A minimum of six hours of science must be chosen.)	(A minimum of six hours of science must be chosen.)	(A minimum of six hours of science must be chosen.)

* With the advice of the committee on courses of study, the student chooses his elective from the courses described on pages 47-65.

† The Roman numerals refer to the course numbers; see pages 47-65.

The Preparatory School

OF THE

Rhode Island College of Agriculture and Mechanic Arts.

The preparatory school is intended for young men and young women who have not the privileges of a high school, and also for those who, because of maturity, are out of touch with the public schools.

Requirements for Admission to Preparatory School.

Candidates for admission must bring testimonials of good character, and must be not less than fifteen years of age.

For admission to the first year in the preparatory school, oral or written examinations will be given in arithmetic, geography, English grammar and United States history. In the arithmetic examination special attention will be paid to common and decimal fractions, denominate numbers, percentage and interest. Whitney and Lockwood's English grammar and Fiske's United States history are recommended. In English, each candidate will be required to answer certain questions in grammar, and to write a short composition correct in spelling, capitalization, punctuation and paragraphing, on a subject announced at the time of the examination. Candidates will be expected to show familiarity with the following works: Hawthorne's The Great Stone Face and the Snow Image; Tennyson's Idylls of the King; DeFoe's Robinson Crusoe; The Arabian Nights; Macaulay's Lays of Ancient Rome. Useful editions of these works will be found either in the Riverside School Library or the Riverside Literature Series, published by Houghton, Mifflin and Company.

Students wishing to enter the second-year class in this school will be examined in geography and United States history, ad-

LIPPITT HALL.

vanced arithmetic, algebra to quadratics, and English. In 1902 the English requirements will cover Shakespeare's The Merchant of Venice and Macbeth; Pope's Iliad, books I, VI, XXII, XXIV; Addison's The Sir Roger de Coverley Papers; Scott's Ivanhoe; Cooper's The Last of the Mohicans; Lowell's The Vision of Sir Launfal; Coleridge's The Ancient Mariner.

Any mature person who can satisfy the examining committee that he has the capacity to do the work, may enter on probation and take the examination later.

Course of Study.

FALL TERM.

First Year Preparatory.	Hrs. per week.	*Second Year Preparatory.*	Hrs. per week.
Advanced Arithmetic	5	Algebra	3
English	6	Geometry	4
General History	3	English	3
Physiography	2	Latin	5

Electives.—Freehand Drawing, Carpentering, Practical Mechanics, Agriculture, Stenography.

WINTER TERM.

Algebra	5	Algebra	3
English	5	Geometry	4
General History	3	English	3
Botany	2	Latin	5
Physiography	1		

Electives.—Carpentering, Wood-carving, Practical Mechanics, Agriculture, Stenography.

SPRING TERM.

Algebra	5	Algebra	3
English	5	Geometry	4
General History	3	English	3
Botany	3	Latin	5

Electives.—Carpentering, Agriculture, Practical Mechanics, Freehand Drawing, Stenography.

Students are required to elect one of the courses offered under electives, which their previous training has fitted them to take. While the course of study is graded in two classes, designated as the First and Second Year Preparatory, a mature student may take such studies from both grades as are essential for preparation for the college.

Students desiring special work in *agriculture* or mechanics, who are not prepared to enter the regular courses leading to a degree, may combine with work in the preparatory department such courses in agriculture and mechanics as may fit their especial needs. The successful completion of such a special course will lead to a certificate covering the work completed.

General Information.

Information with regard to the calendar of the school, the cost of living, regulations, etc., may be found on the first twenty-six pages of this catalogue. For other information apply to

M. H. TYLER, *Master*,

KINGSTON, R. I.

TAFT LABORATORY. DAVIS HALL. BOARDING HALL.

The School of Correspondence.

Education by correspondence can never take the place of actual ttendance at an educational institution, yet it may afford a stimu- ıs and prove a source of help to the one who pursues it faithfully nd earnestly. The School of Correspondence is designed to elp those who cannot attend the college classes. Its aim is to ssist in a study of the problems which bear directly upon the ·ork of the farm. It does not undertake to outline and carry hrough a definite course of instruction. The work which it ffers is in no sense a substitute for a college education. It does ndertake to assist the student to a better understanding of the ›articular subjects in which he is most directly interested. Owing o the limited funds and time available, the work cannot be ex- ended so far as its usefulness warrants. In some departments ›ther duties prevent giving attention to this work. The plan is to ıse books which cover the particular field. Questions on these books are forwarded as the work progresses, the replies to which are to be returned and are discussed when necessary. The ques- tions and discussion growing out of the reading and replies are expected to furnish the most valuable part of the work. Work is under way along lines of general agriculture and of fruit-growing.

No fees are exacted, the only expense being for the books used and the postage required in correspondence. Books are obtained at reduced rates from The Orange Judd Company, 52 Lafayette Place, N. Y., upon presentation of the certificate of enrolment.

Address, School of Correspondence,
Rhode Island College,
Kingston, R. I.

The Nature Guard.

The Nature Guard is an organization of young people formed for the purpose of awakening in its members a livelier interest in the things of out-door life. Its primal object is to stimulate observation and to furnish a key to the coyly hidden secrets of nature, while underneath and behind it all is the desire to instil a love of nature and of country life.

The boys and girls in one school, or in one room, if the school is graded, form themselves into a band and elect officers, which are a Spy and a Guardian. Each band fixes its own times of meeting and adopts its own methods of procedure. Enrolment cards, to be signed and returned, are furnished from headquarters. Printed leaflets are mailed monthly during the school-year, and monthly reports giving observations of their own are asked from the members.

The following bands were enrolled during the school-year of 1900–1901:

Agassiz Band, Woonsocket, R. I. Dorothy W. Caldwell, Spy; Frank Kettlety, Guardian.

Bluebird Band, Pine Hill, R. I. Lottie M. Greene, Spy; Anna Kenyon, Guardian.

Bright-eyed Band, Westerly, R. I. Walter Nelson, Spy; Lottie Payne, Guardian.

Buckfield Nature Band, Buckfield, Maine. Harry Turner, Spy; Cleora M. DeCoster, Guardian.

Conanicut Junior Naturalists, Jamestown, R. I.

Family Band, Peru, Maine. Mrs. M. V. Hall, Mother.

Forest Band, Westerly, R. I. Alexander Kenneth, Spy; Louise Hiscox, Guardian.

Four-Leaf Clover Band, Woonsocket, R. I.

Greenwood Band, Providence, R. I. Viola M. Culton, Spy; Maude A. Burton, Guardian.

Harris Avenue Band, Riverpoint, R. I. Ettie Matteson, Spy; Annie Miley, Guardian.

Hiawatha Band, Phenix, R. I. Thomas C. Clowes, Spy; Helena V. Quinlan, Guardian.

Hope Band, Woonsocket, R. I. Edith L. Livingston, Spy; Mabel G. Davidson, Guardian.

Horse Shoe Lake Band, Lovell, Maine. Mrs. Z. McAllister, Mother.

Laurel Band, Blowing Rock, N. C. Robert Lambkins, Spy; Annie Reid, Guardian.

Laurel Lake Band, Kingston, R. I. Mary Northup, Spy; Walter Knowles, Guardian.

Look-About-You Club, Providence, R. I. Edgar Sellew, Spy; Grace Peckham, Guardian.

Marigold Band, Phenix, R. I. Frederick B. Tew, Spy; Alice Magill, Guardian.

Mary Dickerson Band, Providence, R. I. Daniel Hodnett, Spy; Albert Fleckhamer, Guardian.

Mayflower Band, Madison, Conn. Harry N. D. Kelsey, Spy; Clarence Bassett, Guardian.

Meadow Band, Westerly, R. I. LaVerne Stillman, Spy; Mary Utter, Guardian.

Mother Nature's Sons, Westerly, R. I. Joseph Corey, Spy; Sallie E. Coy, Guardian.

Mountain Boomer Band, Blowing Rock, N. C. Clarence Weedon, Spy; Luda Perry, Guardian.

Outlook Band, Providence, R. I. Joseph McCormick, Spy; John Coffey, Guardian.

Pansy Band, Hillsdale, R. I. Arthur L. Cooke, Spy; Sadie Marshall, Guardian.

[illegible] Spy: Louis [illegible]

[illegible] Spy: [illegible]

[illegible] Buck. [illegible]

[illegible] Spy: [illegible] H. [illegible]

[illegible] Spy [illegible]

[illegible] Spy: [illegible]

[illegible]

[illegible] Spy: [illegible]

[illegible] Spy: [illegible]

[illegible] Spy: [illegible]

[illegible] Spy: [illegible]

Religious Organizations.

Young Men's Christian Association.

E. J. Crandall.....President.

R. W. Kent.....Vice-President.

R. W. Pitkin.....{Cor. Secretary. / Rec. Secretary.}

W. M. Hoxsie.....Treasurer.

Young Women's Christian Union.

Laura M. Cooke.....President.

Nellie A. Harrall.....Vice-President.

S. Elizabeth Champlin.....Secretary.

Edith S. Rodman.....Treasurer.

Alumni Association.

Warren B. Madison.....President.
East Greenwich, R. I.

George A. Rodman.....Secretary and Treasurer.
Providence, R. I.

*Students.

Graduate Students.

Briggs, Nellie Albertine, B. S., 1901.....Kingston
George, Lillian Mabelle, B. S., 1899.....Amesbury, Mass.
Steere, Anthony Enoch, B. S., 1900.....Chepachet
Smith, Howard Dexter, B. S., 1901.....North Scituate
Wilby, John, B. S., 1901.....Kingston

Graduates of 1901.

Brayton, Charles Andrew, Agr.....Kingston
Briggs, Nellie Albertine, Sci.....Kingston.
Burgess, Charles Stuart, Mech.....Providence.
Clarner, Louis George Karl, Jr., Sci.....Arnold's Mills.
Dawley, Edna Ethel, Sci.....Kenyon.
Denico, Arthur Albertus, Sci.....Narragansett Pier.
James, Ruth Hortense, Sci.....Kenyon.
Sherman, Anna Brown, Sci.....Kingston.
Sherman, Elizabeth Agnes, Sci.....West Kingston.
Smith, Howard Dexter, Sci.....North Scituate.
Steere, Roena Hoxsie, Sci.....Providence
Wilby, John, Sci.....Kingston

Seniors.

Clarke, Latham, Chem.....West Kingston.
Cornell, Bailey Jordan, Eng.....Croton-on-Hudson, N. Y.

* From January 1, 1901, to January 1, 1902.

Ferry, Oliver Needham, Mech.....Palmer, Mass.
Maxson, Ralph Nelson, Chem.....Westerly.
Pitkin, Robert William, Mech.....Cowesett.
Reynolds, Arthur Leone, El. Eng.....Athol, Mass.

Juniors.

Barber, Kate Grace, Gen. Sci.....Carolina.
Clarner, John Adam, Mech.....Pawtucket.
Cooke, Laura Marion, Gen. Sci.....Narragansett Pier.
Crandall, Elverton Jewett, El. Eng.....Adamsville.
Cross, Frederick Lawrence, El. Eng.....Narragansett Pier.
Duffy, John Edward, Biol.....Riverpoint.
Goddard, Warren, Jr., Mech.....Brockton, Mass.
Hoxsie, Fred Clifford, Biol.....Woodville.
Hoxsie, Willard Munroe, Biol.....Quonochontaug.
Keefer, Edith L., Biol.....Oceanus, N. Y.
Kent, Raymond Warren, Chem.....Woonsocket.
Kenyon, Charles Franklin, El. Eng.....Point Judith.
Loomis, William, Mech.....Glastonbury, Conn.
Peckham, Arthur Noyes, El. Eng.....Kingston.
Quinn, Mary Louise, Biol.....Wakefield.
Rodman, Edith Stoughtenburg, Gen. Sci.....Kingston.
Tefft, Ernest Allen, El. Eng.....Hope Valley.
White, Mabelle Frances, Gen. Sci.....Amesbury, Mass.
Whitmore, Charles Ely, El. Eng.....Holyoke, Mass.

Sophomores.

Alomá, Tiberio Garcia, El. Eng.....Cienfuegos, Cuba.
Ballou, Willard Alger, Biol.....Lawrence, Mass.
Briggs, Myron Watson, El. Eng.....Kingston.
Clancy, John, Agr.....Mystic, Conn.
Rodman, Walter Sheldon, El. Eng.....Wakefield.
Wells, Thomas Perry.....Kingston.

Freshmen.

Bolster, William Arthur.....Valley Falls.
Carley, Frederick James.....Tewksbury, Mass.
Champlin, Sarah Elizabeth.....Kingston.
Clark, Rollin Grover.....Narragansett Pier.
Dow, Victor Wells.....Hartland, Me.
Gilman, Jean.....Gilman, Me.
Harrall, Nellie Armstrong.....Wakefield.
Hoxsie, Katherine Mertie.....Woodville.
MacDonald, James Merton.....Wood River Junction.
Merriam, Beulah Amanda.....Millbury, Mass.
Schofield, James Frederick.....Bristol.

Specials.

Bateman, Ernest.....Peace Dale.
Church, Albert Sumner.....Narragansett Pier.
Cross, John Gardiner.....Narragansett Pier.
Hayes, Elbert Seymour.....Block Island.
Hodges, Mrs. Leonie Rose.....New York, N. Y.
Patterson, Percy Milton.....Providence.
Reynolds, Walter Florus.....Brockton, Mass.
Storey, Frank Hepworth.....Wakefield.
Wilcox, Charles William.....Kingston.

Preparatory School.

Adams, Harry Ernest.....Providence.
*Aldrich, Myron Olney.....Woonsocket.
*Arnold, Benjamin Howard.....East Greenwich.
Bell, Leroy Valentine.....Wakefield.
Brigham, Reuben.....Kingston.
.....Narragansett Pier.

*Bryant, Hershey Sneath.....Gardner, Mass.
Bryer, Howard Burton.....Newport.
Bundy, Willard Clifford.....Little Compton.
Calder, John Alexander.....Westerly.
Carbonell, Antonio y Besada.....Trinidad, Cuba.
*Carpenter, Hortense Blakesley.....Kingston.
Clemens, Fred Joseph.....Peace Dale.
Davis, Augustus Boss.....Kingston.
Dawley, Percy William.....Kenyon.
Dixon, Melvin Erastus.....Worcester, Mass.
Donath, Francis Edward.....Pawtucket.
Elkins, Marion Graham.....Amesbury, Mass.
England, Fred Dexter.....Lonsdale.
Fagan, Hugh Jean.....Peace Dale.
Flagg, Caleb Belcher.....Kingston.
Gammon, Fred Battles.....Brockton, Mass.
Gleason, Walter Carpenter.....Providence.
*Grinnell, George Francis.....Narragansett Pier.
*Harding, Lee La Place.....Hamburg, Conn.
Hendrich, Augustus Charles William.....Kingston.
Hevia, Horacio.....Havana, Cuba.
Hubbard, Frank Wilson.....Providence.
Keyes, Frederick George.....Rochester, N. Y.
Macomber, Miner Sanford.....Kingston.
Martin Francisco José.....Cartago, Costa Rica.
Martinez, Rolando.....New York, N. Y.
McCarthy, Charles Henry.....Central Falls.
Mugica, Alfredo.....Havana, Cuba.
*Murray, James Lee.....Narragansett Pier.
Nichols, Howard Martin.....Kenyon.
Northup, John Winchester.....Kingston.
Potter, Mabel Endora.....Wakefield.
Riley, William Edward.....Narragansett Pier.
Sherman, Benjamin Francis.....West Kingston.
Sisson, Cora Edna.....Wickford.

Sisson, Neva Maude.....Wickford.
Slocum, Percy Wilfred.....Kingston.
Smith, Bert Cleveland.....Tarkiln.
Smith, Thomas Albert.....Providence.
Tucker, Ethel Aldrich.....Kingston.
Tucker, Hannah Mahala.....West Kingston.
Urrutia, Carlos.....Comerio, Porto Rico.
Watson, Walter Irving.....Wakefield.
Wilbur, Lester Emerson.....Little Compton.
Williams, Hazel Eugene.....Sylvania, Pa.
Winsor, Sydney Brown.....Greenville.

Specials in Wood-Carving.

Lewis Balch.....Kingston.
Mrs. Charles Brayton.....Kingston
Mary J. Brown.....Kingston.
Mrs. Fred Clark.....Kingston.
Mrs. A. A. Greenman.....Kingston.
Lillian Rodman.....Kingston.

Course in Farm-Practice.

Buchanan, Charles Stuart Hamilton.....New York, N. Y.
Demary, Jackson.....Charlestown, N. H.
Dilatush, Robert Mortimer.....Robbinsville, N. Y.
Gage, Isaac Bradlee, A. B.....West Medford, Mass.
Gardner, Fred Foster.....Haverhill, Mass.
Handy, Robert Sylvan.....Cataumet, Mass.
Peckham, William Albert.....Little Compton.
White, Ernest Lambert.....Somerville, Mass.

Poultry School.

Adams, Robert Ernest.....Briarcliffe Manor, N. Y.
Aldrich, Stuart Morgan.....Providence.
Allen, John.....South Westport, Mass.

Arnold, Louis Valentine.....Prudence Island.
Barton, Benjamin.... ....Kingston.
Bennett, Burtis Adelbert..... ... .Ludlow, Mass.
Benson, Harry Elmer. .....Dorchester, Mass.
Burgess, John..... .....Hope Valley.
Caswell, John. ....Wakefield.
Crandall, Almond..... .....Winfield, N. Y.
Dennis, Thomas Ezra..... .....Bovina Centre, N. Y.
Dunham, John Edgar.....West Springfield, Mass.
Estabrook, Frank Leslie..... ....Athens, Pa.
Figge, Charles Frederick .... Hempstead, N. Y.
Graham, Frederick Seeley.....Washington, Pa.
Gudge, Benjamin Joseph.....White City, Kans.
Hemingway, Thomas.....Glenview, Chicago, Ill.
Hemingway, Mrs. Thomas..... Glenview, Chicago, Ill.
Jacques, Mrs. Sarah Eleanor .....Porter, Mass.
McLaine, John Harold.....Fordham, N. Y.
McMillan, Charles Wallace..... ...Barre, Vt.
McMorrow, Thomas Patrick.....Dorchester, Mass.
Milliken, Edward Norris..... ...New Bedford, Mass.
Peterman, William Henry..... .....Kipple Post Office, Pa.
Quigley, Michael Francis ....Port Richmond, N. Y.
Richardson, Harry Putnam..... .....Durham, N. H.
Rush, William Thomas..... .....Toronto, Canada.
Sheldon, Herbert Pierpont.....Livonia, N. Y.
Stoneburn, Frederick H ....Morristown, N. Y.
Stroh, Amos Harry..... .....Christopher, Pa.
Wilson, William Lorenzo..... .....Philadelphia, Pa.

Total, counting none twice.....163.

Graduates.

1894.

Adams, George Edward, Agr. .. ..Kingston
Assistant in Charge of Field Experiments, R. I. Agr. Experiment Station

Ammonds, George Clarence, Mech... .....Kingston
Railroad Mail Clerk on N. Y., N. H. & H. R. R.

Arnold, Chapin Trafford, Agr.....Providence
Electrician, Office, 107 Westminster St., Providence.

Burlingame, George Washington, Agr..... ...Chepache
Teacher and Poultryman.

Clark, Helen May, B. L., Smith College, 1899,
118 Lawrence St., Brooklyn, N. Y.
Y. W. C. A. Settlement Worker, Willoughby House.

Knowles, John Franklin, Mech.....Kingsto
Assistant, Wood-Working Dept., R. I. C. A. & M. A.

Madison, Warren Brown, Agr.....East Greenwic
Gardener and Florist.

Mathewson, Ernest Hoxsie, Mech., Ph. B., Brown University, 18
Tariffville, Connecticut.
In Charge of Experiments under Division of Soils, Department of Agriculture.

Peckham, Reuben Wallace, Agr....Melville Station, Middleto
Market Gardener.

Rathbun, William Sherman, Agr. .....Wakefiel
Practicing Veterinary.

Rodman, George Albert, Mech.....Providence.
Assistant, Bridge Dept., N. Y., N. H. & H. R. R. Co.

Sargent, Charles Lawrence, Agr., Ph. D., 1900,
University of Pennsylvania, Newark, New Jersey.
Chemist, Murphy Varnish Co.

Slocum, Samuel Watson, Agr.....130 West Broad St., Westerly.
Carpenter.

Spears, John Barden, Agr.....Foster Centre.
Farmer.

Sweet, Stephen Adelbert, Agr.....Slocums.
Farmer.

Tucker, George Mason, Agr., Ph. D.,
Göttingen, Germany, 1899. Ojitlan, Mexico.
Manager, Coffee and Rubber Plantation.

Wilber, Robert Arthur, Mech.....East Greenwich.
Express Agent.

1895.

Albro, Lester Franklin, Agr.....Middletown.
Student in Singing.

Burdick, Howland, Agr.....Kingston.
Farm Superintendent, R. I. C. A. & M. A.

Clarke, Charles Sherman, Mech.....Jamestown.
Chief Engineer, Newport and Jamestown Ferryboat Co.

Eldred, Mabel Dewitt.....Kingston.
Instructor in Drawing, R. I. C. A. & M. A.

Hammond, John Edward, Agr.....Jamestown.
Farmer.

Oatley, Lincoln Nathan, Mech.....Wakefield.
Carpenter and Contractor.

Scott, Arthur Curtis, Mech.....Kingston.
Professor of Physics, R. I. C. A. & M. A.

Tefft, Jesse Cottrell, Mech.....Jamestown.
Purser, Newport and Jamestown Ferryboat Co.

Winsor, Byron Edgar, Mech.....Summit.
Poultryman.

1896.

Brown, May (Mrs. Charles A. White).....Narragansett Pier.

Greenman, Adelaide Maria, Graduate, School of Expression, 1899, 19 Mt. Vernon St., Newport.
Teacher of Expression.

Kenyon, Albert Lewis, Mech.....59 Camp St., Providence.
Printer, Silver Spring Bleaching and Dyeing Co.

Moore, Nathan Lewis Cass, Agr.....Mystic, Connecticut.
Railroad Mail Clerk on N. Y., N. H. & H. R. R.

Tabor, Edgar Francis, Mech.....18 Balaklava St., Providence.
Printer, Silver Spring Bleaching and Dyeing Co.

Williams, James Emerson, Agr.....Summit.
Farmer and Grain Dealer.

1897.

Carmichael, Welcome Sands, Sci.....194 Broadway, Providence.
Bookkeeper, Belcher & Loomis Hardware Co.

Case, Herbert Edwards Brown, Mech., Ph. B., Brown University, 1900.....Hartford, Conn.
Student, Hartford Theological Seminary.

Grinnell, Archie Franklin, Mech., 460 Chalkstone Ave., Providence.
Draughtsman, Brown & Sharpe Mfg. Co.

Hanson, Gertrude Maie, Sci.....Peace Dale.

Horsie, Bessie Bailey (Mrs. E. F. Rueckert),
80 Atlantic Avenue, Providence.

Larkin, Jessie Louise, Sci.....98 Beach St., Westerly.
Stenographer.

Kenyon, Charles Franklin, Mech.....Shannock.
In Woolen Mills of E. Kenyon & Son, Kenyon.

Kenyon, Albert Prentice, Mech.....Ashaway.
Bookkeeper, Maxson & Co., Westerly.

Marsland, Louis Herbert, Mech.....Cincinnati, Ohio.
Instructor in Mathematics, Ohio Military Institute.

Tefft, Eliza Alice, Sci.....Allenton.
Teacher.

Thomas, Irving, Mech.....Centreville.
Designer of Patterns.

1898.

Arnold, Sarah Estelle, Sci. (Mrs. R. O. Brooks).....Princeton, N. J.

Barber, George Washington, Agr.....Shannock.
Clerk.

Cargill, Edna Maria, Sci.....Abbott Run.
Student, Chandler Normal Shorthand School, Boston, Mass.

Case, John Peter, Agr.....Cleveland, Ohio.
With Brown Hoisting and Machinery Co.

Clarke, William Case, Sci.....Wakefield.
Secretary, Sea View Electric Railroad.

Congdon, Henry Augustus, Mech.....Kingston.
Farmer.

Flagg, Martha Rebecca, Sci.....Kingston.

Harley, William Ferguson, Agr., 561 Pawtucket Ave., Pawtucket.
Salesman, Boston Store, Providence.

ɔr, Harriette Florence, Sci., G...
Florence, Mass.
Director, Domestic Science Dept., Hill Industrial School.

ıson, Grace Ellen, Sci. (Mrs. Wm. F. Harley),
561 Pawtucket Ave., Pawtuc

1899.

Bosworth, Alfred Willson, Sci ....Kings
Assistant Chemist, R. I. Agr. Experiment Station.

Brooks, Ralph Ordway, Sci.....Princeton, N
Chemist, Laboratory of Hygiene.

George, Lillian Mabelle, Sci..... ....Kings
Librarian, R. I. C. A. & M. A.

Harvey, Mildred Wayne, Sci.....Ithaca, N
Stenographer, Cornell Incubator Mfg. Co.

Kenyon, Blydon Ellery, Agr.....Kings
Engineer, R. I. C. A. & M. A.

Knowles, Carroll, Mech.....King
Assistant in Mechanics, R. I. C. A. & M. A.

Knowles, Harry, Sci..... .....Boston,
Instructor in Mathematics, American School of Correspondenc

Ladd, Merrill Augustus, Mech...U. S. Army Transport "F
Chief Electrician.

Morrison, Clifford Brewster, Sci.....543 Broad St., Pr
Chemist, City Sewerage Dept.

Owen, William Frazier, Mech.....Schenect
Clerk, Data Dept., General Electric Co.

Payne, Ebenezer, Sci.....Ann A
Student, Medical School of the University of Michi

Phillips, Walter Clark, Mech.....Lafayette.
Student, Brown University.

Reynolds, Robert Spink, Mech.....New Haven, Conn.
Draughtsman, Bridge Dept., N. Y., N. H. & H. R. R. Co.

Rice, Minnie Elizabeth, Sci.....Wickford.
Teacher.

Sherman, Abbie Gertrude, Sci. (Mrs. B. Barton).....Kingston.
Sherman, George Albert, Mech...554 Massachusetts Ave., Boston.
Insurance Agent.

Thompson, Sally Rodman, Sci.....Wakefield.

1900.

Brightman, Henry Maxson, Mech.....Buffalo, N. Y.
With Buffalo Forge and Blower Co.

Cross, Charles Clark, Mech.....Providence.
Foreman Oil-Annealing Furnaces, Nicholson File Co.

Eldred, John Raleigh, Mech....1140 Westminster St., Providence.
With Nicholson File Co.

Fison, Gertrude Sarah, Sci.....Northampton, Mass.
Assistant Librarian, Forbes Library.

Fry, John Joseph, Mech.....East Greenwich.
Principal, Grammar School.

Goddard, Edith, Sci.....Brockton, Mass.
Student, Bridgewater Normal School.

Kenyon, Amos Langworthy, Agr.....Alton.
Farmer.

Munro, Arthur Earle, Sci.....Quonochontaug.
Student, Brown University.

Soule, Ralph Nelson, Sci.....East Greenwich.
Electrician.

Steere, Anthony Enoch, Mech.....Kingston.
Graduate Student, R. I. C. A. & M. A.

Stillman, Lenora Estelle, Sci.....Jamaica, N. Y.
Student, Jamaica Normal School.

Tucker, Bertha Douglass, Sci.....Swansea Centre, Mass.
Dressmaker.

Wheeler, Charles Noyes, Sci.....Westerly.
With Providence Telephone Co.

Wilson, Joseph Robert, Mech.....Belleville
In Woolen Mills, J. P. Campbell.

1901.

Brayton, Charles Andrew, Agr.....Fiskeville.
Engineer.

Briggs, Nellie Albertine, Sci.....Kingston.
Graduate Student, R. I. C. A. & M. A.

Burgess, Charles Stuart, Mech.....264 Sayles St., Providence.
Draughtsman, Brown & Sharpe Mfg. Co.

Clarner, Louis George Karl, Jr., Sci.....Providence.
Chemical Dept., Silver Spring Bleaching and Dyeing Co.

Dawley, Edna Ethel, Sci.....Kenyon.
Teacher.

Denico, Arthur Albertus, Sci.....Narragansett Pier.
Student, Brown University.

James, Ruth Hortense, Sci.....Kenyon.
Teacher.

Sherman, Anna Brown, Sci.....Kingston.
Stenographer.

Sherman, Elizabeth Agnes, Sci.....West Kingston.
Teacher.

Smith, Howard Dexter, Sci.....Kingston.
Graduate Student, R. I. C. A. & M. A.

Steere, Roena Hoxsie, Sci.....98 Fifield St., Providence.
Stenographer.

Wilby, John, Sci.....Kingston.
Graduate Student, R. I. C. A. & M. A.

Treasurer's Report.

ELVILLE BULL, *Treasurer, in account with the* RHODE ISLAND COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

1901. Dr.

n. 1.	To cash balance on hand	$1,802 27
	1862 Fund, in hands of State treasurer	4,011 26
	J. H. Washburn, president, for students' board, etc.	14,335 40
	Cash received from incidentals	585 30
	Cash received from interest	28 43
		$20,762 66

901. CR.

By salaries	$2,659 35
Postage, stationery and printing	143 50
Freight and express	605 53
Traveling	239 94
Tools and machinery	150 37
Labor	5,734 96
Store	807 49
Furniture	544 80
Coal, wood, gasoline, grain, etc.	1,964 33
Construction and repairs	1,440 78
Provisions	2,127 43
Boarding expense	1,438 24
Balance	2,905 94
	$20,762 66

THIS IS TO CERTIFY that the undersigned, auditing committee of the Board of Managers of the Rhode Island College of Agriculture and Me-

chanic Arts, have examined the accounts of Melville Bull, treasurer, a above, and find the same to be correct, leaving a balance in the said treas urer's hands of two thousand nine hundred and five dollars and ninety four cents ($2,905.94).

J. V. B. WATSON,
Auditing Committee.

MELVILL BULL, *Treasurer, in account with the* RHODE ISLAND AGRICU TURAL EXPERIMENT STATION.

1901.	DR.	
	To balance from last year	$172
	Station receipts	568
	Interest	36
		$777

1901.	CR.	
	By salaries	$88
	Labor	328
	Postage and stationery	5
	Freight and express	91
	Heat, light and water	5
	Seeds, plants, and sundry supplies	51
	Feeding-stuffs	38
	Library	2
	Tools, implements and machinery	
	Furniture and fixtures	13
	Live stock	1
	Traveling expenses	2
	Contingent expenses	1
	Building and repairs	5
	Balance	224
		$777

THIS CERTIFIES that the undersigned, auditing committee of the Boar of Managers of the Rhode Island College of Agriculture and Mechan Arts, have examined the accounts of Melville Bull, treasurer of the Agri cultural Experiment Station, and the vouchers corresponding therewith, for the year ending June 30th, 1901, and find the same correct.

The total receipts are $777.41, and the total expenditures are $553.15, thus leaving a balance to new account of $224.26.

J. V. B. WATSON,
J. H. WASHBURN,
Auditors.

THE RHODE ISLAND STATE AGRICULTURAL EXPERIMENT STATION *in account with the* UNITED STATES APPROPRIATION.

1901. DR.

To receipts from the Treasurer of the United States as per appropriation for fiscal year ending June 30, 1901, as per act of congress approved March 2, 1887		$15,000 00

1901. CR.

By salaries	$8,876 93	
Labor	2,788 15	
Publications	40 74	
Postage and stationery	220 48	
Freight and express	161 37	
Heat, light, and water	320 57	
Chemical supplies	90 81	
Seeds, plants, and sundry supplies	531 91	
Fertilizers	180 87	
Feeding stuffs	479 94	
Library	499 62	
Tools, implements, and machinery	106 95	
Furniture and fixtures	39 37	
Scientific apparatus	209 31	
Live stock	44 70	
Traveling expenses	268 33	
Contingent expenses	19 31	
Buildings and repairs	120 64	
		$15,000 00

We, the undersigned, duly appointed auditors of the corporation, do hereby certify that we have examined the books and accounts of the Rhode Island State Agricultural Experiment Station for the fiscal year ending

June 30, 1901; that we have found the same well kept and classif above, and that the receipts for the year from the Treasurer of the U States are shown to have been $15,000.00, and the corresponding dis ment $15,000.00; for all of which proper vouchers are on file and hav by us examined and found correct, thus leaving no balance.

And we further certify that the expenditures have been solely f purposes set forth in the act of congress approved March 2, 1887.

J. V. B. WATSON,
J. H. WASHBURN,
Audit

Synopsis of the Report of the Treasurer of the Rhode Island Coll Agriculture and Mechanic Arts to the Secretary of Agriculture a Secretary of the Interior, of amount received under Act of Cong August 30, 1890, in aid of Colleges of Agriculture and the Me Arts, and of the disbursements thereof, to and including June 30, 1

Balance on hand July 1, 1900.....
Date of receipt of installment for 1900-01, July 11th, 1900.....$25,

$25,

DISBURSEMENTS THEREOF FOR AND DURING THE YEAR ENDING 30, 1901:

SCHEDULE A.—Disbursements for Instruction in Agriculture and for facilities for such instruction.....	$3,613 30
SCHEDULE B.—Disbursements for Instruction in the Mechanic Arts and for facilities for such instruction.....	5,738 04
SCHEDULE C.—Disbursements for Instruction in English language and for facilities for such instruction.....	2,266 99
SCHEDULE D.—Disbursements for Instruction in Mathematical Science and for facilities for such instruction.....	2,656 10
SCHEDULE E.—Disbursements for Instruction in Natural Science and for facilities for such instruction.....	10,013 78

SCHEDULE F.—Disbursements for Instruction in Economic Science and for facilities for such instruction	711 19	
Total expended during the year		$24,999 40
Balance remaining unexpended July 1, 1901		60
		$25,000 00

I HEREBY CERTIFY that the above account is correct and true, and, together with the schedules hereunto attached, truly represents the details of expenditures for the period and by the institution named; and that said expenditures were applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction.

MELVILLE BULL, *Treasurer.*

ITEMIZED EXPENDITURES OF THE $15,000.00 (HATCH FUND FOR AGRICULTURAL EXPERIMENTS) WILL BE FOUND IN THE AGRICULTURAL EXPERIMENT STATION REPORT.

ollege of Agriculture

and

Mechanic Arts.

Kingston, R. I.

1905.

Fifteenth Annual Report

of the

Corporation, Board of Managers

of the

Rhode Island College of Agriculture and Mechanic Arts,

made to the

General Assembly at its January Session, 1903.

1902 Part I.

Part II — Experiment Station Report — is printed under separate cover.

Providence, R. I.
E. L. Freeman & Sons, Printers to the State.
1903.

Rhode Island College of Agriculture and Mechanic Arts.

Corporation.

HON. MELVILLE BULL.....NEWPORT COUNTY.
HON. C. H. COGGESHALL.....BRISTOL COUNTY.
* HON. HENRY L. GREENE.....KENT COUNTY.
HON. BENJAMIN A. JACKSON.....PROVIDENCE COUNTY.
† HON. THOMAS G. MATHEWSON.....KENT COUNTY.
HON. J. V. B. WATSON.....WASHINGTON COUNTY.

Officers of the Corporation.

HON. HENRY L. GREENE, President.....P. O., RIVERPOINT, R. I.
HON. C. H. COGGESHALL, Clerk.....P. O., BRISTOL, R. I.
HON. MELVILLE BULL, Treasurer.....P. O., NEWPORT, R. I.

* Resigned December 20.
† Term of office began December 20.

Report.

To His Excellency Lucius F. C. Garvin, Governor, and the Honor General Assembly of the State of Rhode Island and Provide Plantations, at its January Session, 1903:

I have the honor to submit herewith the Fifteenth Ann Report of the Board of Managers of the Rhode Island Col of Agriculture and Mechanic Arts, as required by law.

J. V. B. WATSON,

Vice-President of the Board of Managers of the Rhode Island Co of Agriculture and Mechanic Arts.

Faculty and Assistants.

JOHN HOSEA WASHBURN, PH. D.,

PRESIDENT,

Professor of Agricultural Chemistry and Physiography.

B. S., Massachusetts Agricultural College, 1878; Graduate student, Massachusetts Agricultural College, 1881-1883; Professor of Chemistry, Storrs Agricultural School, 1883-1887; Student in Göttingen University, 1885 and 1887-1889; Ph. D., Göttingen, 1889; Appointed President, 1890; Resigned, August 15.

HOMER JAY WHEELER, PH. D.,

*ACTING-PRESIDENT,

Professor of Geology and Agricultural Chemistry.

B. S., Massachusetts Agricultural College, 1883; Assistant Chemist, Massachusetts State Experiment Station, 1883-1887; Graduate student, University of Göttingen, 1887-1889; Ph. D., Göttingen, 1889; Appointed Chemist of Rhode Island Agricultural Experiment Station and Professor of Geology, 1890; Appointed Acting-President, August 15.

E. JOSEPHINE WATSON, A. M.,

Professor of Languages.

A. B., Smith College, 1882; A. M., Cornell University, 1883; Assistant in English, Smith College, 1883-1887; Student of North European Languages in Göttingen, 1887-1889; Appointed Professor of Languages, September, 1892; Student of French in Tours, summer of 1895.

WILLIAM ELISHA DRAKE, B. S.,

Professor of Mechanical Engineering.

B. S., Polytechnic Institute, Worcester, 1886; Instructor in Physics and Electricity, Worcester Polytechnic Institute, 1887; Instructor in Woodworking at Pratt Institute, Brooklyn, 1887-1893; Appointed Professor of Mechanical Engineering, 1893.

HARRIET LATHROP MERROW, A. M.,

Professor of Botany.

B. S., Wellesley College, 1886; Teacher of Science, Plymouth (Mass.) High School, 1887-1888; Teacher of Science, Harcourt Place, Gambier, O., 1888-1891; Graduate student, University of Michigan, 1891-1892; A. M., Wellesley College, 1893; Graduate assistant, Botanical Laboratory, University of Michigan, 1893-1894; Appointed Professor of Botany, January, 1895.

All salaries of members of the faculty are paid from United States funds.

*Kenyon L. Butterfield, A. M., becomes President, April 1, 1903.

FRED WALLACE CARD, M. S.,

Professor of Horticulture and Acting-Professor of Agriculture,

B. S., Cornell University, 1892; M. S., Cornell University, 1893; Assistant Horticulturist, C University Experiment Station, 1893; Associate Professor of Horticulture, University of Neb 1893-1898; Appointed Professor of Horticulture, 1898.

COOPER CURTICE, D. V. S., M. D.,

Professor of Animal Industry,

B. S., Cornell University, 1881; D. V. S., Columbia Veterinary College, N. Y., 1883; M. I lumbian University, Washington, D. C., 1887; Assistant Paleozoic Paleontologist, U. S. Geo Survey, 1883-1886; Specialist, Department of Agriculture, Washington, D. C., 1886-1892; Ve rian, State Board of Health, N. Y., 1892-1894; Tuberculosis Specialist, U. S. Department of A ture, Washington, D. C., 1895-1896; Professor of Zoölogy, North Carolina College of Agric and Mechanic Arts, 1898; State Veterinarian, North Carolina, 1899; Appointed Professor of Zo 1900; Professor of Animal Industry, 1902.

ARTHUR CURTIS SCOTT, PH. D.,

Professor of Physics and Electrical Engineering,

B. S., R. I. College of Agriculture and Mechanic Arts, 1895; Appointed Professor of Physics, Ph. D., University of Wisconsin, 1902.

SOLOMON E. SPARROW,

CAPTAIN, UNITED STATES ARMY,

Professor of Military Science and Tactics,

Graduate of West Point, 1878; Detailed Professor of Military Science and Tactics, 1900.

LAURENCE ILSLEY HEWES, PH. D.,

Professor of Mathematics,

B. S., Dartmouth, 1898; With Engineering Department, Massachusetts Highway Comm seasons of 1897-1899; Assistant Engineer, G. R. & I. Street Railway, Essex Co., Mass., 1899; I tor of Macadam Road Construction, Brookline, Mass., 1900; Ph. D., Yale University, 1901 pointed Professor of Mathematics, 1901.

VIRGIL LOUIS LEIGHTON, PH. D.,

Associate Professor of Chemistry,

A. B., Tufts College, 1894; A. M., Kansas State University, 1895; Ph. D., Tufts College, Instructor in Organic Chemistry, Tufts College, 1897-1901; Appointed Associate Professor of istry, 1901.

JOHN BARLOW, A. M.,

Professor of Zoölogy,

B. S., Middlebury, 1895; A. M., Brown University, 1896; Assistant Biologist, R. I. Expe Station, 1898; Professor of Biology, Fairmount College, 1898-1901; Appointed Professor of Zo 1901.

All salaries of members of the faculty are paid from United States funds.

THOMAS CARROLL RODMAN,

Instructor in Woodwork,

Appointed, 1890.

MABEL DEWITT ELDRED, B. S.,

Instructor in Drawing,

B. S., R. I. College of Agriculture and Mechanic Arts, 1895; Appointed Instructor in Drawing, 1897.

MARSHALL HENRY TYLER, B. S.,

Instructor in Surveying and Master of the Preparatory School,

B. S., Amherst College, 1897; Instructor at St. Mark's, 1897-1898; Appointed Master of the Preparatory School, 1898.

ELIZABETH WATSON KENYON, A. M.,

Instructor in Languages and History,

B. S., Mt. Holyoke College, 1896; A. M., Brown University, 1897; Instructor in English and History, Middleborough (Mass.) High School, 1898-1900; Appointed Instructor in Languages, 1900.

SARAH WATSON SANDERSON, B. L.,

Instructor in Languages,

B. L., Smith College, 1900; Appointed Instructor in Languages, 1900.

HOWLAND BURDICK, B. S.,

Instructor in Agriculture and Farm Superintendent,

B. S., R. I. College of Agriculture and Mechanic Arts, 1895; Appointed Assistant in Agriculture, 1897; Appointed Instructor in Agriculture and Farm Superintendent, 1900.

F. PEARLE TILTON,

Instructor in Stenography and Typewriting.

JOHN FRANKLIN KNOWLES, B. S.,

Assistant in Woodwork.

GEORGE BURLEIGH KNIGHT,

Assistant in Ironwork.

LILLIAN MABELLE GEORGE, B. S.,

Assistant in English and Librarian.

CARROLL KNOWLES, B. S.,

Assistant in Mechanics.

All salaries of members of the faculty are paid from United States funds.

CAPTAIN TIBERIO GARCIA ALOMÁ,

Assistant Instructor in Spanish.

BLYDON ELLERY KENYON, B. S.,

Temporary Assistant in Physics,

B. S., R. I. College of Agriculture and Mechanic Arts, 1899; Assistant in Physics, R. I. College, 1899-1900; With Testing Department, Western Electric Co., 1900-1902.

Non-resident Demonstrators and Lecturers for the current year.

J. F. CRANGLE, Supt. Valley Farms, Simsbury, Conn. Subject: "Turk[illegible]ys and Pheasants."

I. K. FELCH, Natick, Mass. Subject: "Standard, Scoring, and Judgin[illegible] with demonstrations.

FRANK W. GAYLOR, Melville Station, Newport, R. I. Subject: "C[illegible]struction of the Brooder House."

HENRY HALES, Ridgewood, N. J. Subject: "Origin and Development [illegible] Fowls."

HENRY M. HOWARD, West Newton, Mass. Subject: "Intensive Methods [illegible] Farming Practiced in Market-Gardens about Boston."

D. J. LAMBERT, Plymouth Rock Farm, Cowesett, R. I. Subject: "How [illegible] Begin in the Poultry Business."

W. D. RUDD (W. H. Rudd, Son & Co.), Boston, Mass. Subject: "Needs [illegible] the Market."

F. W. MURPHY (W. H. Rudd, Son & Co.), Boston, Mass. Demonstration "Preparing Fowls for Market."

HORACE MINER, Westerly, R. I. Subject: "Geese."

WM. A. PECKHAM, Little Compton, R. I. Subject: "Potato Growing."

GEORGE H. POLLARD, Thomas Lawson Farm, Egypt, Mass. Subject "Ducks."

FRANKLANE L. SEWELL, Artist for "Reliable Poultry Journal," Chicago, Ill. Subject: "Types of Birds."

All salaries of members of the faculty are paid from United States funds.

RANK H. STADTMUELLER, Supt. C. E. Beach's Farm, West Hartford, Conn. Subject: "Farm Economics and Farm Management."

. COLLINS TEFFT, Wakefield, R. I. Subject: "Poultry Buildings, Mating and Rearing Chickens."

H. A. NOURSE, Supt. Fisher's Island, New York. Subject: "Preparing Fowls for Exhibition."

THOS. H. TAYLOR, JR., Supt. Poultry Dept. Briarcliff Farms, Briarcliff Manor, New York. Subject: "Broilers, and Daily Operations on a Large Plant."

. H. ROBINSON, Editor "Farm Poultry," Boston, Mass. Subject: "Value of Advertising to the Poultryman."

DWIN C. POWELL, Assistant Editor "N. E. Homestead," Springfield, Mass. Subject: "Co-operation in Poultry-Work."

HAS. O. FLAGG, Farm Supt., Hardwick, Mass. Subject: "Dairying, with Poultry Plant."

. W. CONN, Ph. D., Wesleyan University, Middletown, Conn. Subject: "Bacterial Diseases of Animals."

AMES E. RICE, New York State Farmers' Institute Bureau, New York. Subject: "Brooding, Winter Egg Production, and Plans."

JARED VAN WAGENEN, JR., Lawyersville, N. Y. Subjects: "The Problem of Maintaining Soil Fertility." "Farming for Distant Markets." "Butter Making on the Farm."

THOMAS WRIGHT, South Sudbury, Mass. Subject: "Pigeons."

1903.	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Jan.	..	..	..	..	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
Feb.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	..	..	..	..	..	..	..
Mar.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	..	..	..	..
	..	..	..	..	..	..	..
April.	..	..	..	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	..	..
May.	..	..	..	..	..	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31	..	..	..	..	..	..
June.	..	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	..	..	..	..

1903.	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
July.	..	..	..	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	..
Aug.	..	..	..	..	..	..	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31	..	..	..	..	..
Sept.	..	..	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	..	..	..
Oct.	..	..	..	..	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
Nov.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	..	..	..	..	..
	..	..	..	..	..	..	..
Dec.	..	..	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	..	..

College Calendar.

1903.

sday, January 6.....Examination of Conditioned Students at 9 A. M.

sday, January 6.....Winter Term begins at 1 P. M.

ırsday, January 29.....Day of Prayer for Colleges.

ıday, February 23.....Washington's Birthday.

:sday, March 31.....Winter Term ends at 12 M.

:sday, April 7.....Examination of Conditioned Students at 9 A. M.

:sday, April 7.....Spring Term begins at 1 P. M.

day, May 8.....Arbor Day.

urday, May 30.....Memorial Day.

day, June 14.....Baccalaureate Sunday.

sday, June 16.....Commencement Day.

lay, June 19.....Entrance Examinations at the College at 9 A. M.

sday, September 15....Entrance Examinations at the College and the Examination of Conditioned Students at 9 A. M.

nesday, September 16.....Fall Term begins at 1 P. M.

sday, November 3.....Election Day.

nesday, November 25, 12 M.,
sday, December 1, 8:30 A. M. .....Thanksgiving Recess.

lnesday, December 23.....Fall Term ends at 12 M.

1904.

sday, January 5.....Examination of Conditioned Students at 9 A. M.

sday, January 5.....Winter Term begins at 1 P. M.

in the general chemistry and continued in the third term of the Sophomore year, much attention being given to the application of the principles to problems. Inorganic preparations occupy three periods per week in the first term of the Junior year. Quantitative analysis is also taken up in this term, and extends throughout the Junior year. Organic chemistry begins in the first term of the Junior year, and extends through five terms. It includes much laboratory work in organic preparations. The subject of theoretical chemistry, begun in general chemistry and continued in the Sophomore year, is taken up in a much more advanced way in the first term of the Senior year, a portion of the time being devoted to laboratory work. The subject also affords opportunity for work in advanced inorganic chemistry, gas analysis, mineralogy, blowpipe analysis, assaying, sanitary chemistry, industrial chemistry, physiological chemistry, agricultural chemistry, toxicology, and textile coloring. In the Senior year, candidates for a degree in the chemical course are required to prepare a thesis on some chemical subject.

Instruction in agricultural chemistry, as applied especially to poultry foods, their use and digestion, is given to students in poultry raising. Agricultural chemistry, embracing the chemistry of soils and fertilizers, their composition, manufacture and use, the composition and analysis of fodders and their feeding-values, is offered to agricultural students in the Junior year.

The laboratory is thoroughly equipped with apparatus for the above-mentioned subjects, and opportunity is given for graduate students to continue work in the above lines beyond that required for a degree. A large number of German, French, and English chemical journals are accessible, thus affording excellent opportunity for research work.

Subjects.

I. General Chemistry.—Lectures, recitations, and laboratory work. *Winter and Spring terms, Freshman year. Winter term*

GENERAL VIEW OF CAMPUS.

The College.

History.

IN 1863 the State of Rhode Island accepted from the United States Government the land grant scrip, which gave to each state thirty thousand acres of the public lands for each nator and representative in Congress. The land was to be sold · the states or their agents, the proceeds arising from the sale in-sted, and the annual income derived therefrom was to be "inviably appropriated by each State which may take and claim the nefit of this act, to the endowment, support, and maintenance of least one college where the leading object shall be, without exuding other scientific and classical studies, and including military ctics, to teach such branches of learning as are related to Agriilture and Mechanic Arts, in such manner as the Legislatures of e States may respectively prescribe, in order to promote the eral and practical education of the industrial classes in the veral pursuits and professions in life."

On March 2, 1887, the act known as the Hatch Act was passed, propriating $15,000 annually to each state, for the purpose of tablishing an Agricultural Experiment Station in connection with 1 Agricultural College or School. Such an Agricultural School as provided for by Chapter 706 of the Public Laws, passed May , 1888.

The United States Congress, on August 30, 1890, passed an act own as the New Morrill Bill. This appropriated for the further pport of the agricultural and mechanical colleges a sum begin-

ning with $15,000 and continuing, with a yearly increase of $1,000, until the annual appropriation should reach $25,000.

That the school already established might receive the benefit of the act of Congress, the General Assembly amended Chapter 706 of the Public Laws, incorporating the Rhode Island College of Agriculture and Mechanic Arts.

Since September, 1892, the institution has been conducted on a college basis, with an entirely new course of study.

On April 19, 1894, the Legislature passed an act authorizing the state treasurer to pay Brown University the sum of $40,000, in consideration of which the university was to turn over to the state the proceeds of the original land grant of 1862 and to withdraw from the United States Supreme Court its suit for the Morrill fund.

On January 27, 1895, the college dormitory was destroyed by fire; but it was replaced by a new granite building, which was ready for use the first of October of the same year, and was called Davis Hall.

At the January session of the Legislature, 1897, the institution was given an appropriation for a stone building, one hundred and thirty feet by forty feet, practically three stories high. The basement has three rooms used for instruction in photography and physics, and a large room devoted to electrical engineering. On the second floor are recitation-rooms, chapel, library and reading room, and young women's study-room. The third floor contains a large hall for drill and gymnasium purposes, above which are bath-rooms and lockers. The hall is also used for assemblies whenever larger audiences are expected than the chapel can accommodate. This building is called Lippitt Hall.

In 1898 an excellent dairy barn was erected. This has given the agricultural department increased facilities for instruction.

On May 8, 1901, the Board of Managers established a school mines, to be connected with the school of mechanical and electrical engineering. The courses of instruction for the Freshman and Sophomore years of this school have already been arranged, and

are identical with the courses given in the mechanical and electrical engineering school. The courses for the Junior and Senior years will be made ready for publication as soon as sufficient funds are at hand to put them into effect.

CHANGES IN FACULTY.—The most important change in the faculty of the college which has yet occurred was occasioned by the resignation of the president, John H. Washburn, Ph.D., which took effect August 15, 1902. He held the position as principal of the Rhode Island State Agricultural School from September, 1889, to May 19, 1892, the date upon which the Rhode Island College of Agriculture and Mechanic Arts was incorporated. From that time until August 15, 1902, he remained president of the college. Upon the resignation of President Washburn, H. J. Wheeler, Ph.D., Director of the Experiment Station, was made acting-president pending the election of a permanent incumbent. On December 5, 1902, Kenyon L. Butterfield, A. M., a graduate of the Michigan Agricultural College and lecturer on rural sociology at the University of Michigan, was elected president, to assume his duties April 1, 1903.

The position made vacant August 1, 1902, by the resignation of Miss Lucy Helen Gage, A. B., instructor in stenography and typewriting, was filled September 20, 1902, by the appointment of Miss F. Pearle Tilton.

Object of the College.

The Rhode Island College of Agriculture and Mechanic Arts is an integral part of the school system of the state. Young men and young women from the high schools are admitted to the privileges of the institution without charge for tuition. The object of the college is to prepare young people to take active part in the agricultural, manufacturing, and commercial development of the state. To this end, technical instruction in the sciences and mechanic arts is the fundamental work of the institution. In order

graphs. A suitable photographic laboratory is provided for reproducing the appearance of tested specimens, photographs of physiographic features, and the microscopic structure of substances, for use in the lecture-room.

Advanced photography consists of a more extended study of the chemistry and optics of photography, and laboratory work in making bromide enlargements and lantern-slides. This is followed by the theory and use of the microscope and practical work in photo-micrography, the manipulation of the projection microscope and the optical lantern.

The department has now on hand about three thousand lantern-slides, made by its students and instructors, which are used for illustrating subjects taught in a number of the college departments. It is provided with room and ample apparatus for illustrating and testing every form of light that is in use in projection work, together with the apparatus for x-ray photography with either the high frequency coil or electrostatic machine. The theory and practice of color photography are considered, and apparatus is at hand for the projection of photographs in colors from nature.

Subjects.

I. Elementary Physics.—Study of mechanics, hydraulics, pneumatics and heat, *Fall term;* electricity and magnetism, *Winter term:* sound and light, *Spring term, Freshman year:* recitations, *2 exercises per week;* laboratory work, *1 exercise per week. Required of all candidates for a degree.*

II. Advanced Physics.—*Throughout the year; 3 exercises per week. Required of Sophomores in Engineering courses.*

III. Elementary Photography.—Lectures and recitations upon the optics and chemistry of photography, together with practical photographic work. *Spring term:* lectures, *2 exercises per week;* laboratory work, *1 exercise per week; elective, open to all students.*

which they may follow. In the Senior year every student is required to prepare a thesis or report on some subject connected with the work of the course which he has chosen.

Preparatory School.

Young men and young women who have had no opportunity to receive high school instruction may enter this department to prepare for the college.

For entrance requirements and course of study, see pages 71–73

Agricultural High School.

This course, embracing a large amount of practical agricultural instruction, is designed to meet the wants of those who feel that they cannot spend the time necessary for the completion of the full college course in agriculture.

For further details regarding this course, see pages 77–81.

Special Courses.

Whenever possible, students are urged to enter one of the courses leading to a degree. The arrangement of these courses is the result of careful thought and long experience as to the best combination of studies to fit one for the various occupations in which a technical education is required; and it is believed that no such thorough preparation can be obtained from special courses selected by the student.

However, any courses described in this catalogue may be taken by special students of maturity, who can satisfy the professor in charge of the subject chosen that they are prepared to derive benefit from such work.

Special Students in Agriculture.

Students having a working knowledge of the English branches may enter the college without examination and take those subjects

which will prove of most direct benefit to them in the work of the farm. One or two years can thus be spent with excellent results. A certificate will be granted at the end of the time, showing the work covered.

Such a course may include studies chosen from the agricultural high-school course as well as those given in the college proper. Among the subjects which might be included are agricultural soils, plant life, drainage, agricultural implements and apparatus, farm fertility and its maintenance, field crops, breeds of farm animals, stock-breeding, feeding of farm animals, dairy-husbandry, poultry-raising, business arithmetic and farm accounts, social problems of the farmer, the principles of horticulture, fruit-growing, vegetable-gardening, landscape-gardening, physiology, entomology, bench-work, wood-turning, and forging. In connection with the above, other subjects for which the student is fitted may be taken. The study of English should generally be included.

A special course in farm-practice, continuing six weeks, is offered before the Christmas holidays. A special course in poultry-keeping, also continuing six weeks, follows the Christmas vacation. Payment of tuition fees for those outside the state and board for the full time is required in advance of students registering in the short special courses. Those interested in these courses will please send for circulars giving a full description of them. Address the president.

Requirements for Admission to the College, 1903.

Graduates from high schools, and other schools of similar grade, are admitted without examination, on certificates which are filled out by their principals. The candidate must apply to the college for the certificate, giving the address of his principal who is to certify him. The college will correspond with the principal, furnishing blanks for him to fill. Graduates from high schools are not admitted on diploma.

Candidates not entering the Freshman class on certificate will be

examined in arithmetic; algebra; plane geometry; English grammar; advanced English; one year of German, French, or Latin.

In the arithmetic examination especial attention will be paid to fractions, the metric system, simple and compound proportion, and square root; thorough drill in mental arithmetic will be necessary. The applicant should have mastered all of Wentworth's School Algebra as far as page 293, and Wells's Plane Geometry, or their equivalents.

The English requirements are those prescribed for entrance to the New England colleges. The student will be expected to show familiarity with the works named below. These are divided into two classes. Those marked (*a*) are to be read, and the candidate will be required to show a general knowledge of their subject-matter and of the lives of the authors. Those marked (*b*) are to be thoroughly studied, so that the candidate will be able to pass an examination upon their subject-matter and structure. To be acceptable, the candidate's paper must show a good knowledge of spelling, capitalization, punctuation, sentence and paragraph structure. The books prescribed for 1903 are the following: (*a*) Addison's The Sir Roger de Coverley Papers; Carlyle's Essay on Burns; Coleridge's The Ancient Mariner; Eliot's Silas Marner; Goldsmith's The Vicar of Wakefield; Lowell's The Vision of Sir Launfal; Scott's Ivanhoe; Shakespeare's The Merchant of Venice, and Julius Cæsar; Tennyson's The Princess. (*b*) Burke's Speech on Conciliation with America; Macaulay's Essays on Milton and Addison; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Shakespeare's Macbeth. For 1904: (*a*) Same as 1903. (*b*) Same as 1903. For 1905: (*a*) Same as 1903. (*b*) Same as 1903. The language requirements cover one year's work in either French, German, or Latin; and Latin is recommended. In French and German this requirement comprises the essentials of grammar, easy reading, and elementary composition. In Latin the candidate must be prepared to study Cæsar. The following text-books are recommended: Chardenal's Complete French Course, Lyon and De

Larpent's Primary French Translation Book; the Joynes-Meissne German Grammar, Part I, or Collar's Shorter Eysenbach, Guerber' Märchen und Erzählungen, Part I; Collar and Daniel's First Lati Book, or Lindsay and Rollins's Easy Latin Lessons.

Admission to Advanced Standing.

Candidates may enter any of the higher classes for which the are prepared.

Opportunities Offered to Women.

The courses of instruction are open to men and women alike The women's dormitory will accommodate a limited number o students, and the college will on application find boarding-place for others in private families in town. Special waiting and study rooms are provided for the women who are day students.

Expenses for Women.

Room-rent is free in compensation for certain required dutie Fuel and lights are supplied at cost. Rooms are provided wi necessary furniture, including mattresses, but no other bedding m terial. Other expenses are as given below. The women have opportunity to do their own washing and ironing. A Singer a a Household sewing-machine are at the disposal of all those livi at the dormitory.

Expenses.*

Tuition is free to all Rhode Island students. The regular e penses are tabulated below:

* For exceptions in expenses for women, see above.

	Per year. Minimum.	Maximum.
† Board, $3.50 per week for 36 weeks	$126 00	$126 00
Men's Dormitory: Room-rent, $3 per term	9 00	9 00
Lights, $1 to $3 per term	3 00	9 00
Fuel, spring and fall terms, each $3; winter term, $6	12 00	12 00
Books	15 00	30 00
Washing, 30c. to 60c. per week	10 80	21 60
Uniform for military drill, $15	7 50	30 00
Reading-room tax, 25c. per term	75	75
Incidental expenses, 50c. per term	1 50	1 50
Laboratory fees, $2 to $10 per term	6 00	30 00
	$191 55	$269 85

The amount of laboratory fees varies from one to ten dollars per term, depending upon the laboratory work taken. One dollar per term is charged for each of the following: botanical, zoölogical, and physical laboratories; carpenter shop; wood-turning, forge shop, machine shop, and wood-carving. This pays for the material ordinarily used in class work and for the wear and care of tools and apparatus. Any person who breaks apparatus or tools, through carelessness or neglect of instructions, will be charged the cost of the same. The chemical laboratory fee is three dollars per term for qualitative, quantitative, and organic laboratory work. This covers general chemicals and use of apparatus. Students are required to pay for breakage and for any chemicals they may use in making special preparations for themselves. A fee of three dollars is also required in the electrical laboratory. Graduates pay the cost of diplomas, five dollars. *No diploma will be issued until the candidate has paid all term bills.* Every able-bodied male student is required to drill and to wear a uniform. The uniform must be paid for immediately on entering the college, when the students are measured for the suits. When worn only on drill and properly cared for, one uniform may last two or more years. The student

† It is hoped that the cost of living may soon decrease, so that board may be reduced to $3.00.

may, however, wear his uniform all the time. Day students are required to deposit five dollars per term in advance, or to pay cash for articles purchased at the college store. The college conveys students daily to and from the railroad station free of charge. Once at the beginning and end of each term, a team conveys trunks to and from the station. Boarding students shall pay term bills in advance, deposit fifty dollars each term, or give bond for two hundred dollars for the payment of all bills. No bond will be accepted from any member of the faculty. No reduction on board is made for less than five whole days' absence at one time, and this only when due written notice has been given. Fifteen cents extra is charged for each meal sent to a student's room, from sickness or any other cause. *All students in the men's dormitory are required to supply their own furniture and bedding.* The necessary furniture may be obtained at the college when desired. A room may be furnished for from eight to ten dollars. Iron bedsteads three feet wide are included under room-rent. The furniture, if properly kept, may be sold, when the student leaves, for one-half to three-fourths of the original price. All clothing should be distinctly marked. Damage to buildings must be paid for according to extent of injury.

Self-Help.

A limited amount of work about the buildings, on the farm, at the experiment station, in the laboratories, and in the college laundry, will be furnished to students who desire it and who prove industrious and trustworthy. Good students, who desire to help in paying their expenses, should be able to earn from twenty-five to one hundred dollars per year, depending upon the amount of time they can spare from their studies. *No work is given to students who have not a fair standing in their classes.* The larger sums can be earned only by students who spend their vacations here at work. These opportunities are offered only to students who show a sense of responsibility in the performance of the

duties assigned to them, and a disposition to render a fair equivalent for the compensation they receive. The past year means have not been sufficient to furnish work to all needing it. It is hoped that adequate provision for student labor may be made before the opening of the fall term, 1903.

The Lippitt Prize.

For several years past, through the generosity of ex-Governor Charles Warren Lippitt, two prizes of sixty and forty dollars have been offered for the best written and delivered essays on the history of Rhode Island in the Revolution. These essays have been read on the Monday preceding commencement. In 1902 the successful competitors were Warren Goddard, Jr., Brockton, Mass., first prize; Mary Louise Quinn, Wakefield, R. I., second prize.

Regulations of the College.

Conditions.—Section 1.—Any student absenting himself from more than ten per cent of the total number of recitations in any subject shall not be allowed to take his examination in that subject, except by special vote of the faculty, but shall be conditioned.

Section 2.—No student shall begin or drop a study without the consent of the committee on courses of study; the penalty for dropping such subject being a condition.

Section 3.—Examinations of conditioned students shall be held only on the days assigned in the college calendar. Any student who, after such examination, shall still have three or more conditions shall be obliged to withdraw from the college. Students still having not more than two conditions may take second examinations at the next regular time, and, failing to pass, shall have no further opportunity to remove such conditions except by special vote of the faculty.

Section 4.—A student wishing to take an examination to remove

a condition must make application for the same, to the professor in whose department the condition was received, at least seven days before the date of the examination.

Section 5.—Students, whether regular or special, shall remove entrance conditions to both the preparatory school and the college within a year from the date of entrance, unless excused by the committee on courses of study.

Exemption from Examination.—Section 6.—Students shall be exempt from examination at the end of the term in studies in which their term averages are above eighty per cent.

Thesis.—Section 7.—Every student who is a candidate for a degree shall prepare a thesis, and shall submit it to the president of the college at least one month before the time for granting the degree.

Student Publications.—Section 8.—No student shall publish any article in any college, class, or society publication designed for public circulation, or deliver any address on the college campus attended by persons other than students, without the consent of the president or some person appointed by him for granting such permissions.

Athletics.—Section 9.—No student shall represent the college on the athletic field, or in any other organization before the public, who is not regularly registered and in good standing; by good standing is meant conformity to all the rules of the college.

Military Drill.—Section 10.—All students not excused from military drill by virtue of physical disability shall be obliged to be present at all drills. Absence from three drills in one year without excuse by the military officer shall be sufficient cause for dismissal from the college.

Public Worship.

Being a state institution the college is strictly non-sectarian, and the widest latitude is given to all creeds and forms of religious

Then follows a study of worms, arthropods and mollusks, and in the spring term the vertebrates are taken up.

Alternating with this subject, the study of vertebrate anatomy and physiology is given through the year. The student is first taught the structure of the mammalian body by study of the skeleton and dissection of the cat. Physiology is then pursued through the remainder of the year.

Electives are offered in anatomy, embryology, histology, and economic zoölogy. Subjects V (A) and III (B) are specially designed to meet the needs of those who are preparing to study medicine or veterinary science, while subjects II (A) and IV (B) are specially designed for the latter class. Subjects VII (A) and II (A) are designed to be of value to those who are to take up any of the various lines of agriculture and animal industry.

Instruction is largely by laboratory work and lectures. Text-books are used, and much reference work in standard texts and current periodicals is required.

Special facilities for the study of the smaller farm animals are afforded by the college farm and experiment station poultry-yards. The experiments now in progress in the "hothouse" plans of raising poultry give unequalled advantages for study in this line. The rapid reproduction of poultry, rabbits, etc., makes them ideal material in studying living processes.

The marine fauna, occurring at a short distance from the college, in the ocean, Narragansett bay and numerous estuaries; the fresh-water fauna, occurring in the springs, ponds, and streams near by; together with an abundant land fauna of the smaller types of mammals, birds, reptiles, amphibians, fish and insects, make the locality specially favorable for field work.

For indoor study the department is well equipped with Leuckart's charts; Zeigler's and other models; manikins elucidating the anatomy of man, horse, and fowl; skeletons of all the domestic animals; a complete series of the principal vertebrated forms, each type being represented by skeleton and mounted skin. The col-

belief. Simple chapel exercises are held each morning, except Saturday and Sunday, conducted by the president or some member of the faculty. All students are expected to be present, unless excused upon the special request of parents or guardians. They are also expected to attend some church on Sunday. From time to time distinguished speakers, both clergymen and laymen, are invited to address the students upon ethical and religious subjects. A branch of the Intercollegiate Young Men's Christian Association is doing good work among the students, as is also the Young Women's Christian Union.

The Rhode Island College Lecture Association.

Faculty and students, uniting with residents of the vicinity, conduct a winter lecture course, the aim of which is to introduce talented speakers upon subjects both entertaining and instructive. The association may be looked upon as a permanent and important factor in college activities. For the season of 1902–1903, the following programme was secured:

January 16, Mr. Benjamin Chapin, "Abraham Lincoln."

February 6, Hon. Albert L. Blair, "The Ideal Newspaper."

March 6, Rev. Peter MacQueen, "The Philippines, Past and Future."

March 20, Mr. William E. Chancellor, "Our Various Worlds, and How We Make Them."

April 17, Professor C. T. Winchester, "An Evening in the London of 1780."

The Library.

The library occupies a large room in Lippitt Hall and numbers over ten thousand volumes. The books are arranged in stacks, to which the students have free access. The Dewey system of classification is used; and a dictionary catalogue gives author, subject, and title. As the library has been from the first intended for refer-

ence work, the various departments of instruction have made their selections with the greatest care. Combined with the library is the reading-room, where one hundred of the leading periodicals—of literary, scientific, and general interest—are on file. From time to time these are bound, and prove of great value in research work.

The library is open every week day from 7:30 A. M. to 6:00 P. M., with the exception of a half-hour at noon. The librarian or her representative is in constant attendance to aid any one in search of information. As the college is an institution designed to further the educational interests of Rhode Island, all residents of the state are at liberty to use its library.

Location.

The college campus is one and a half miles from Kingston station, which is at the junction of the main line of the N. Y., N. H. & H. R. R. with the Narragansett Pier branch, thus insuring excellent railroad accommodations. The buildings are on a hill which commands an extended view of the surrounding country—a location both healthful and beautiful.

IN THE CORN-FIELD.

VI. Normal Histology and Histological Methods.—*Winter term; exercises of 2 hours each per week. Elective; open to students who ve taken course I (B).*

VII. (A) Economic Entomology.—Study of forms of special terest to the agriculturist. *Fall term; 3 exercises of 2 hours each r week. Elective.*

VIII. (A).—More advanced work in special topics may be taken p by special arrangement with the instructor.

Psychology.

I. Elementary Course.—Lectures, recitations, simple laboratory xperiments. *Winter and Spring terms; 3 exercises per week. Elective for Juniors and Seniors.*

Agriculture.

ROF. CARD, DR. WHEELER, DR. CURTICE, MR. TYLER, MR. BURDICK.

The science of agriculture rests upon many sciences. Thorough aining in agriculture therefore presupposes a foundation knowl-ge of these sciences. This foundation must be obtained in other partments of the institution.

The object of an agricultural education is to teach the why of rming, not the how. In other words, it is the special province an agricultural college to deal with the principles which under-e the various operations of the farm rather than with the methods performing those operations. In doing this it does not under-stimate the importance of knowing how to do farm work. It ecognizes fully that there can be no complete success without such nowledge, but it believes that the average student can better learn ese things on a well-managed, up-to-date farm than at an agri-ultural college. He can there gain experience and earn wages at he same time. At college he is on expense and earning nothing. Some practical operations can be better learned at college than else-

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management, effects and
conservation, rotations,
vegetable-gardening;
agricultural physics,
soil physics, drainage;
insect life, enemies of
work; farm business.
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where. These things the college will try to teach. It will not try to teach a man to become expert in hoeing corn or in digging potatoes. To teach such things would mean that the student must miss many things of value which the college can teach and the farm cannot.

A college course in agriculture should teach a man those things which will enable him to make a success of his profession. It should do more; it should give him an educational training which will enable him to become a leader in the affairs of men. The world needs farmers; it needs men among farmers more. It is calling for such men. It offers them a liberal share of its rewards. Positions are waiting, opportunities are opening, possibilities exist, on every farm. To train men to fill these positions, to embrace these opportunities, to see the possibilities, is the object of the course in agriculture.

SPECIAL COURSE IN FARM-PRACTICE.—A special course in farm practice was inaugurated in the fall of 1901, occupying six weeks immediately preceding the Christmas holidays. The design of this course is to give clear-cut, practical instruction in agriculture. It aims to emphasize a study of the soil and the plant as constituting the foundation of successful farm-practice.

The following subjects are taken up during the course: soils and fertilizers, how soils are made, kinds of soil, the purchase, mixing, and use of commercial fertilizers; soil management, effects and methods of tillage, humus supply, moisture conservation, rotations, and cover crops; field-crops; fruit-growing; vegetable-gardening; the feeding and breeding of live stock; agricultural physics, mechanics as applied to farm implements, soil physics, drainage; the plant, its method of life and its enemies; insect life, enemies of the farm and garden; wood-work; iron-work; farm business. Practical men from outside the college aid in the instruction.

The expenses are kept as low as possible. A certificate of attendance is given at the completion of the course. No entrance examination is required.

XIX. Metallurgy.—Lectures and recitations.—*Spring term, Senior year; 3 exercises per week. Optional for students in the Chemical course with Chemistry XVI as alternative.*

XX. (A) Advanced Inorganic Chemistry.—*Winter term, Senior year; 3 exercises per week. Required of students in the Chemical course.*

XX. Thesis Work.—*Throughout the Senior year. Required of students in the Chemical course.*

Physics.

DR. SCOTT, MR. KENYON.

Instruction in physics begins with the first term of the Freshman year, and consists of lectures, recitations, and laboratory work. The various branches grouped under this head are treated both mathematically and experimentally. The recitations are prepared chiefly from Wentworth and Hill's Text-book of Physics. The laboratory work consists of special experiments from various authors.

Advanced physics embraces a deeper and more extended discussion of statics, kinetics, and mechanics of fluids, in the fall term; heat, wave motion and sound, in the winter term; and light, in the spring term. Hastings and Beach's General Physics is used as a text-book, supplemented by lectures. Laboratory exercises accompany the theoretical work, and must be taken with it throughout the year.

The physics department is equipped with all necessary apparatus for fully illustrating the lectures, as well as for conducting satisfactory qualitative and quantitative laboratory experiments.

Instruction in photography is offered as an elective to students who have an elementary knowledge of physics and chemistry. The subject embraces lectures and recitations, together with instruction in practical methods of making negatives and photo-

Subjects.

I. Soils and Fertilizers.—Origin and formation of soils; chemical and physical properties; temperature; moisture; effects of tillage and other conditions upon fertility. Fertilizers, source, classification and effects; economy in using; application and calculation of formulas. *Fall term, Junior year; 3 exercises per week. Required of Agricultural students.* Dr. Wheeler.

II. Farm Crops.—Needs of the plant; maintenance of fertility and humus; grains; grasses; clovers; forage crops and root. *Winter term, Junior year; 3 exercises per week. Required of Agricultural students.* Professor Card.

III. Farm Equipment.—Selection and equipment of farms; buildings, fences, roads, water supply, farm power, field machinery and appliances. *Spring term, Junior year; 3 exercises per week. Required of Agricultural students not taking Horticulture V.* Professor Card and Mr. Burdick.

IV. Farm Management.—Farm capital, permanent and floating; distribution of capital; labor and its efficiency; profit or loss from the use of machinery; farm advertising; inventory and accounts; types of farming considered from a business standpoint. *Fall term; 2 exercises per week. Elective.* Professor Card.

V. Rural Economics.—History and development of agriculture; influence of location, climate and other factors upon agriculture of a country; relation of agriculture to other industries, and to the body politic; farm law. *Winter term; 2 exercises per week. Elective.* Professor Card.

VI. Farm Surveying and Drainage.—Mapping of fields; location of drains; leveling and construction of farm drains. *term; 2 exercises per week. Elective.* Mr. Tyler.

VII. Farm Animals.—Principles governing the choice breeding of animals. Types and breeds of different kinds animals. *Winter term; 3 exercises per week. Elective.* Dr. Cur

A NEGLECTED ORCHARD AFTER MODERATE CARE.

THE BOTANICAL LABORATORY.

to the needs of the general student who desires a knowledge of the principles of biology as illustrated by our common plants, and also furnishes a good foundation to the student who is to follow more advanced work in botany, agriculture, horticulture or medicine. Elementary agricultural botany is given in the agricultural high school, and is described with the other subjects of that school. Students wishing to emphasize botany in their choice of studies are given every opportunity to follow lines of work best suited to their needs. Excellent advantages are offered to those who wish to elect work in plant pathology. The laboratory keeps in store a supply of dry and alcoholic material for the study of parasitic fungi, and collecting fields for fresh material are near at hand. Each student is supplied with a compound microscope, a dissecting microscope, re-agents, and small instruments. The laboratory is equipped with apparatus for simple physiological experiments, a microtome, paraffin bath, stains, thirty Brendel models, Briosi and Cavara's Parasitic Fungi of Cultivated Plants, Ellis's Fungi Columbiani, Seymour and Earle's Economic Fungi, Arthur and Holway's Uredineæ, and an herbarium of native plants. A good working library, including several American and foreign periodicals, is an important part of the equipment of the laboratory.

Subjects.

I. Biology of Plants.—The general principles of biology are illustrated by our common plants. Laboratory, reading and lectures. *Throughout the Sophomore year; 3 exercises of 2 hours each per week. Required of students in the Science courses.*

II. Pathology.—A study of the nature and the causes of plant diseases and the remedies for them. Laboratory, field work, reading and lectures. *Elective; open to students who have taken Botany I. Hours arranged with instructor.*

III. Histology.—Laboratory, reading and lectures. The laboratory work includes methods of imbedding, sectioning, staining

and mounting. *Elective; open to students who have taken Botany I. Hours arranged with instructor.*

IV. A study of the Spring Flora of Kingston, considered from an ecological and systematic standpoint. Special attention is given to the rose family. The major part of the time may be given to herbaceous forms or to trees and shrubs. Field and laboratory. *Spring term; 3 exercises per week. Elective; open to students who have taken Botany I.*

V. A study of the Fall Flora of Kingston, considered from an ecological and systematic standpoint. Special attention may be given to weed-plants, grasses, and the clover family, or the student may give his attention chiefly to trees and shrubs. Field and laboratory. *Fall term; 3 exercises per week. Elective; open to students who have taken Botany I.*

VI. Plant-Life.—A study of the plant and its environment. Nutrition, growth, reproduction, plant diseases and their remedies are treated. Lectures and reading, illustrated by models, charts, demonstrations, and field and laboratory work. *Given six weeks in the winter school of Farm Practice.*

By consulting the instructor other arrangements may sometimes be made for those desiring to elect work in botany.

Zoölogy.

PROFESSOR BARLOW.

The work in zoölogy is begun in the Sophomore year. Alternating subjects are offered to those beginning the study. The first of these is the general subject of animal biology. Beginning with the lowest and most simple forms of life, type forms from each important group are studied. Neatness and precision in dissection and accuracy in drawing are emphasized. During the fall term protozoans, coelenterates and echinoderms are studied.

LADD LABORATORY.

Then follows a study of worms, arthropods and mollusks, and in the spring term the vertebrates are taken up.

Alternating with this subject, the study of vertebrate anatomy and physiology is given through the year. The student is first taught the structure of the mammalian body by study of the skeleton and dissection of the cat. Physiology is then pursued through the remainder of the year.

Electives are offered in anatomy, embryology, histology, and economic zoölogy. Subjects V (A) and III (B) are specially designed to meet the needs of those who are preparing to study medicine or veterinary science, while subjects II (A) and IV (B) are specially designed for the latter class. Subjects VII (A) and II (A) are designed to be of value to those who are to take up any of the various lines of agriculture and animal industry.

Instruction is largely by laboratory work and lectures. Text-books are used, and much reference work in standard texts and current periodicals is required.

Special facilities for the study of the smaller farm animals are afforded by the college farm and experiment station poultry-yards. The experiments now in progress in the "hothouse" plans of raising poultry give unequalled advantages for study in this line. The rapid reproduction of poultry, rabbits, etc., makes them ideal material in studying living processes.

The marine fauna, occurring at a short distance from the college, in the ocean, Narragansett bay and numerous estuaries; the fresh-water fauna, occurring in the springs, ponds, and streams near by; together with an abundant land fauna of the smaller types of mammals, birds, reptiles, amphibians, fish and insects, make the locality specially favorable for field work.

For indoor study the department is well equipped with Leuckart's charts; Zeigler's and other models; manikins elucidating the anatomy of man, horse, and fowl; skeletons of all the domestic animals; a complete series of the principal vertebrated forms, each type being represented by skeleton and mounted skin. The col-

lection includes many rare and remarkable forms from distant parts of the earth, such as the lung fishes, Hatteria, the wingless birds of New Zealand, and many Australian forms. The invertebrate series is represented in a similar way. The collection of Rhode Island birds is practically complete, and most of the reptile and batrachian species of the state are represented.

The laboratory is provided with microtome, microscopes, and all necessary apparatus for microscopic work. In the library is the best literature of the subject, and a number of the leading current zoölogical journals are available at the experiment station or by special arrangement.

Subjects.

I. (B) Animal Biology.—A study of selected types of the leading animal phyla, beginning with the low forms and advancing systematically to the higher vertebrates. This subject alternates with V (A), III (B). *Throughout the Sophomore year; 3 exercises of 2 hours each per week. Required in the Science courses.* Given in 1904-5.

II. (A) Anatomy of the Horse.—Study of the skeleton and model, and dissection. *Winter term; 3 exercises per week. Elective.*

III. (B) Physiology.—Comparative physiology of mammals, alternating with I (B). *Winter and Spring terms; 2 recitations and 1 laboratory exercise of 2 hours per week.*

IV. (A) Embryology.—The development of the chick and frog. *Spring term; 3 exercises of 2 hours each per week. Elective; open to students who have taken Zoölogy I (B).*

IV. (B) Poultry and Poultry Parasites.—*Winter term; 3 exercises per week. Elective.*

V. (A) Vertebrate Anatomy.—Detailed study of the cat. *Fall term; 3 exercises of 2 hours each per week. Elective.*

FUTURE MEMBERS OF THE HERD.

IN THE CORN-FIELD.

VI. Normal Histology and Histological Methods.—*Winter term; 3 exercises of 2 hours each per week. Elective; open to students who have taken course I (B).*

VII. (A) Economic Entomology.—Study of forms of special interest to the agriculturist. *Fall term; 3 exercises of 2 hours each per week. Elective.*

VIII. (A).—More advanced work in special topics may be taken up by special arrangement with the instructor.

Psychology.

I. Elementary Course.—Lectures, recitations, simple laboratory experiments. *Winter and Spring terms; 3 exercises per week. Elective for Juniors and Seniors.*

Agriculture.

PROF. CARD, DR. WHEELER, DR. CURTICE, MR. TYLER, MR. BURDICK.

The science of agriculture rests upon many sciences. Thorough training in agriculture therefore presupposes a foundation knowledge of these sciences. This foundation must be obtained in other departments of the institution.

The object of an agricultural education is to teach the why of farming, not the how. In other words, it is the special province of an agricultural college to deal with the principles which underlie the various operations of the farm rather than with the methods of performing those operations. In doing this it does not underestimate the importance of knowing how to do farm work. It recognizes fully that there can be no complete success without such knowledge, but it believes that the average student can better learn these things on a well-managed, up-to-date farm than at an agricultural college. He can there gain experience and earn wages at the same time. At college he is on expense and earning nothing. Some practical operations can be better learned at college than else-

where. These things the college will try to teach. It will not tr to teach a man to become expert in hoeing corn or in digging p tatoes. To teach such things would mean that the student mu miss many things of value which the college can teach and th farm cannot.

A college course in agriculture should teach a man those thing which will enable him to make a success of his profession. I should do more; it should give him an educational training whic will enable him to become a leader in the affairs of men. Th world needs farmers; it needs men among farmers more. It calling for such men. It offers them a liberal share of its reward Positions are waiting, opportunities are opening, possibilities exis on every farm. To train men to fill these positions, to embra these opportunities, to see the possibilities, is the object of th course in agriculture.

SPECIAL COURSE IN FARM-PRACTICE.—A special course farm practice was inaugurated in the fall of 1901, occupying si weeks immediately preceding the Christmas holidays. The desig of this course is to give clear-cut, practical instruction in agricul ture. It aims to emphasize a study of the soil and the plant a constituting the foundation of successful farm-practice.

The following subjects are taken up during the course: soils anc fertilizers, how soils are made, kinds of soil, the purchase, mixing and use of commercial fertilizers; soil management, effects anc methods of tillage, humus supply, moisture conservation, rotations and cover crops; field-crops; fruit-growing; vegetable-gardening the feeding and breeding of live stock; agricultural physics mechanics as applied to farm implements, soil physics, drainage the plant, its method of life and its enemies; insect life, enemies o the farm and garden; wood-work; iron-work; farm business Practical men from outside the college aid in the instruction.

The expenses are kept as low as possible. A certificate o attendance is given at the completion of the course. No entranc examination is required.

SPECIAL COURSE IN POULTRY-KEEPING.—A special course in oultry-keeping continues for six weeks immediately following the hristmas vacation. The aim of the course is to give pointed, ractical instruction in the science and art of poultry-keeping and o present the latest and best methods in practice and management. his pioneer course in poultry-keeping has been in progress for he past five years and has proved uniformly successful.

Theoretical or practical teaching is given in the following subects: zoölogy, including anatomy, physiology and embryology; reeds of fowls and their origin; principles of breeding, mating, are and management; incubation and brooding; chemistry of oods; feeding; egg and flesh production; caponizing; fattening; killing, dressing and marketing; the prevention of diseases; poultry plants, including location, drainage, buildings, drawing of plans, specifications, estimates, construction, ventilation and heating; records and accounts; crops raised for poultry or as an adjunct to the business.

The practical work includes individual practice in artificial incubation and brooding, and in preparation of fowls for the market. Frequent excursions are made to typical poultry plants for a study of their stock and practical management. An annual trip is made to either the Boston or New York poultry show. One of the strong features of the course consists in the fact that the students are brought in contact with a large number of practical poultrymen, who come to the college annually to assist in the instruction.

Early enrollment is necessary for admission to this course, as the number of applications frequently exceeds the number of students which can be accommodated. No entrance examinations are required. Certificates of attendance are given at the close of the course.

Subjects.

I. Soils and Fertilizers.—Origin and formation of soils; chen cal and physical properties; temperature; moisture; effects tillage and other conditions upon fertility. Fertilizers, sour classification and effects; economy in using; application and c culation of formulas. *Fall term, Junior year; 3 exercises per we Required of Agricultural students.* Dr. Wheeler.

II. Farm Crops.—Needs of the plant; maintenance of fertili and humus; grains; grasses; clovers; forage crops and roo *Winter term, Junior year; 3 exercises per week. Required of Ag cultural students.* Professor Card.

III. Farm Equipment.—Selection and equipment of far buildings, fences, roads, water supply, farm power, field machin and appliances. *Spring term, Junior year; 3 exercises per we Required of Agricultural students not taking Horticulture V.* P fessor Card and Mr. Burdick.

IV. Farm Management.—Farm capital, permanent and floati distribution of capital; labor and its efficiency; profit or loss f the use of machinery; farm advertising; inventory and accou types of farming considered from a business standpoint. *Fall te 2 exercises per week. Elective.* Professor Card.

V. Rural Economics.—History and development of agri ture; influence of location, climate and other factors upon agriculture of a country; relation of agriculture to other ind tries, and to the body politic; farm law. *Winter term; 2 exerc per week. Elective.* Professor Card.

VI. Farm Surveying and Drainage.—Mapping of fields; lo tion of drains; leveling and construction of farm drains. *F term; 2 exercises per week. Elective.* Mr. Tyler.

VII. Farm Animals.—Principles governing the choice a breeding of animals. Types and breeds of different kinds animals. *Winter term; 3 exercises per week. Elective.* Dr. Curtic

A NEGLECTED ORCHARD AFTER MODERATE CARE.

VIII. Farm Animals.—Principles of feeding, nutrition, assimilation and excrementation; selection; composition and digestibility of food-stuffs; feeding standards and compounding of rations; practice in the preparation of food and methods of feeding; principles of hygiene and management. *Fall term; 3 exercises per week. Elective.* Dr. Curtice.

IX. Dairy Husbandry.—Care and management of dairy cattle; buildings and equipment; milk production, composition, management, aëration, pasteurization, sterilization, testing, preservation, transportation; creaming. *Spring term; 3 exercises per week. Elective.* Dr. Curtice.

X. Poultry Raising.—Domestic fowls—kinds, breeds, selection and breeding; buildings—location and arrangement, construction and furnishing, ventilation, yards and parks; foods and feeding; care and management, production of eggs and flesh, fattening; dressing and marketing; incubation, natural and artificial; rearing; diseases and enemies; caponizing. *Spring term; 3 exercises per week. Elective.* Dr. Curtice.

XI. Agricultural Experimentation.—Objects, methods and results of agricultural experimentation; precautionary measures; sources of error; interpretation of results. *Spring term; 2 exercises per week. Elective.* Dr. Wheeler.

XII. Agricultural Literature.—Seminary courses in the literature of special subjects. *By arrangement.*

XIII. Original Investigations.—For advanced students only. *By arrangement.*

Horticulture.

PROFESSOR CARD.

Work in horticulture is designed for students from all courses. It is felt that some knowledge of the subject may very properly form a part of every well-rounded education.

In the introductory subject the aim is to discuss principles general importance to all who have to deal with orchard or gar crops. The subjects of pomology and vegetable-gardening are signed to give practical instruction in the growing of fruits : vegetables.

Landscape-gardening is especially recommended to those \ seek to appreciate the beautiful in nature or in art. Its aim i apply the principles of beauty, as evinced in the work of nat to the art of embellishing grounds.

Forestry touches problems of import to every citizen intere in the public welfare. Owing to the intimate relation betw forests and waterflow, the subject is often of more vital importa to the manufacturer than to the farmer.

The subject of plant-breeding appeals chiefly to those intere in the broader problems of biological development and relations. A careful study of the amelioration and development of pl under culture throws light upon many of the general problem evolution which are of interest to all thinking students.

The subjects of reading and original investigation are desig chiefly for students who wish to make a specialty of horticult

Subjects.

I. Principles of Horticulture.—A discussion of fundame principles underlying horticultural operations in orchard, gar and greenhouse. *Fall term ; 2 recitations and 1 laboratory pe per week. Elective.*

II. Pomology.—Lectures and supplementary reading. Desig to give practical instruction in fruit-growing. *Winter term ; 3 ercises per week. Elective.*

III. Vegetable-Gardening.—Methods of growing garden v tables in the open ground and under glass. *Winter term ; 3 e cises per week. Elective.*

IV. Landscape-Gardening.—The principles underlying la

scape-gardening as a fine art, with discussion of the ornamentation of home-grounds, school-grounds, cemeteries, parks, highways and other public grounds. Lectures and supplementary reading. *Fall term ; 3 exercises per week. Elective.*

V. Forestry.—General importance of forests, their influence on climate and water supply, methods of regeneration, and systems of forest management. Lectures and supplementary reading. *Spring term, Junior year ; 3 exercises per week. Required of Agricultural students not taking Agriculture III.*

VI. Plant-Breeding.—A discussion of the development of plants under culture, with especial reference to problems of heredity, environment, variation, selection and evolution. Lectures and supplementary reading. Open to students who have had course I in botany. *Fall term ; 2 exercises per week. Elective.*

VII. Horticultural Literature.—A seminary course designed to give familiarity with horticultural writings, ancient and modern. *By arrangement. Elective.*

VIII. Original Investigation.—For advanced students only. *By arrangement. Elective.*

Languages.

PROFESSOR WATSON, MISS KENYON, MISS SANDERSON, SR. ALOMÁ.

The subjects grouped under this head are English, German, French, Spanish and Latin. For entrance requirements see pages 18–20. In all the college courses leading to a degree, three years of English and two years of foreign language study are required.

English.

*II. Rhetoric.—Text-book study and practical application of rhetorical principles in themes and exercises. *Throughout the*

*Course I, Elementary English, is given in the preparatory school.

Freshman year; 2 exercises per week. Required of all candidate a degree.

III. Critical study of certain prose masterpieces by Ca Emerson, Lamb, Holmes, Thoreau, Burroughs, and Warner; essays and various short papers. *Throughout the Sophomore y 2 exercises per week. Required of all candidates for a degree.*

IV. General English Literature.—Largely a study of Cha Shakespeare, Milton, Wordsworth, Tennyson, Browning, and times. Essays and collateral reading required. Students ar couraged to special investigation along literary and historical l *Throughout the Junior year; 2 exercises per week. Required c candidates for a degree.*

V. Special English Literature.—Study of special periods authors. *Throughout the year; 3 exercises per week. Elective; to students who have taken courses I–IV or their equivalent.*

VI. Special Work in Themes. *Throughout the year. Elec open to students who have taken courses I–IV or their equivalent.*

German.

I. Elementary German.—Grammar, dictation, conversa reading of easy prose and poetry. *Fall term, Freshman yea exercises per week; Winter and Spring terms, 4 exercises per w Required of all candidates for a degree who do not offer French.*

II. Reading of intermediate texts, composition, conversa *Fall term, Sophomore year, 3 exercises per week. Open to stu who have taken course I or its equivalent, and required of all cand for a degree who do not offer French.*

III. German Classics.—*Winter and Spring terms, Sopho year; 3 exercises per week. Open to students who have taken su I and II or their equivalent, and required of all candidates for a d who do not offer French.*

IV. Goethe's Meisterwerke (Bernhardt).—*Fall term; 3 exercises er week. Elective; open to those who have taken subjects I–III or eir equivalent.*

V. Study of Schiller or Heine.—*Winter term; 3 exercises per ek. Elective; open to those who have taken subjects I–III or their uivalent.*

VI. Study of Freytag.—*Spring term; 3 exercises per week. lective; open to those who have taken subjects I–III or their equiva- nt.*

VII. Scientific German.—Special work assigned by different ofessors. *Elective; open to those who have taken subjects I–III or eir equivalent.*

French.

I. Elementary French.—Grammar, dictation, conversation, read- ig of easy prose and poetry. *Fall term, Freshman year, 5 exer- ses per week; Winter and Spring terms, 4 exercises per week. Required of all Freshmen not taking German or Latin and not offer- ng French for admission.*

II. Reading of intermediate texts, composition, conversation.—*Throughout the Sophomore year; 3 exercises per week. Required of all candidates for a degree who do not offer German.*

III. French Classics.—*Throughout the year; 3 exercises per week. Elective; open to students who have taken subjects I and II.*

IV. Lyrics of the Nineteenth Century.—*Fall term; 3 exercises per week. Elective; open to those who have taken subjects I and II or their equivalent.*

V. Study of Victor Hugo.—*Winter term; 3 exercises per week. Elective; open to those who have taken subjects I and II or their equivalent.*

VI. Scientific French.—Special work assigned by different pro-

fessors. *Elective; open to those who have taken subjects I and II or their equivalent.*

Spanish.

I. Elementary Spanish.—Grammar (Loiseaux or Manning), dictation, conversation, letter-writing, commercial forms, reading of easy prose: Reader (Loiseaux or Matzke), Doce Cuentos Escogidos (Fontaine), El Pájaro Verde (Valera). *Elective. Throughout the year; 3 exercises per week.*

II. Advanced Spanish.—Composition (Ford or Ramsey). Reading of more difficult texts: Gil Blas (translation of El Padre Isla); Ó Locura Ó Santidad (Echegaray); Doña Perfecta, Marianela (Galdós); El Capitán Veneno (Alarcón). *Elective. Throughout the year; 3 exercises per week.*

Latin.

* II. Cæsar or selections from various Latin authors. *Elective. Throughout the year; 3 exercises per week.*

History and Political Science.

II. American History. — Lectures, recitations, reports. The origin and early development of American institutions; the colonial policies of European states; intercolonial wars; the Revolution; the establishment, the development and operation of the Constitution of the United States; political parties; the Civil War and Reconstruction. *Throughout the year; 3 exercises per week. Elective.* Miss Kenyon.

IV. European History.—Lectures, recitations and reports. The sources of mediæval and modern civilization; the empire of Charles the Great; the feudal system; the crusades; the national growth of France, Germany and England; the Renaissance; the Reforma-

* I. Elementary Latin is given in the preparatory school.

tion, the French monarchy in the seventeenth century, the system of the balance of power, the Puritan movement, the Revolution of 1688, the rise of Prussia, the French revolution and a general survey of European history since 1815. *Throughout the year; 3 exercises per week. Elective for Juniors and Seniors.* Miss Kenyon.

V. Science of Government. — Town, city, county, state and United States. Their origin, development and practices. Critical analysis of the Constitution of the United States. Lectures, recitations and reports. *Fall term, Senior year; 3 exercises per week. Required of all candidates for a degree.*

VI. Political Economy.—General principles. Based on Walker's Advanced Course. — Lectures, recitations, discussions, readings, essays. Consideration of present day problems. *Winter and Spring terms, Senior year; 3 exercises per week. Required of all candidates for a degree.*

Mathematics.

DR. HEWES.

All students study higher algebra, solid geometry, and plane trigonometry, in their Freshman year. These subjects offer good mental discipline and form the basis of future work in engineering and mathematics. They include as applications the solution of numerical equations and problems involving logarithms, the measurement of volumes and areas, and solution of triangulation problems.

Those who elect engineering courses study plane and solid analytical geometry during the first two terms of the Sophomore year. In the spring term differential calculus is begun and the integral calculus completes the subject in the winter term of the Junior year. The remainder of this winter term and the spring term during the Junior year are occupied with the study of theoretical mechanics.

Throughout the work emphasis is laid on the direct application

of the subjects to the actual problems that arise in the engineering courses of which they form a part. The student is made to feel as far as possible the need of advanced methods of treatment simultaneously with the presentation of that treatment. It is not the aim of the work principally to develop mathematicians but engineers with useful mathematical training.

Adequate opportunity will be given to advanced students in pure and applied mathematics to arrange with the instructor for study in the Senior year, and for a graduate course if desired.

Subjects.

*IV. Higher Algebra.—Permutations and combinations, applications of the principle of mathematical induction, theory and use of logarithms (not involving infinite series), determinants, elements of the theory of equations. *Fall term, Freshman year; 4 exercises per week. Required of all candidates for a degree.*

V. Plane Trigonometry.—Study of the six functions as ratios; proofs of the principal formulas; in particular the sine, cosine, and tangent of $A \pm B$ and $2A$. The use of logarithms and the solution of triangles with applications. *Spring term, Freshman year; 3 exercises per week. Required of all candidates for a degree.*

VI. Solid Geometry (Phillips and Fisher).—The usual theorems relating to lines and planes in space. Calculation of cubic contents of polyhedra, the cone, sphere and cylinder. *Winter term, Freshman year; 3 exercises per week. Required of all candidates for a degree.*

VII. Analytical Geometry.—The various co-ordinate systems and their relations. Derivations of the equations of the line, circle and conics. Study of loci and methods of plotting. Detailed analysis of the equations of second degree in two variables. *Fall term, Sophomore year; 3 exercises per week. Required of students in the Engineering courses.*

*Courses I, II, and III are given in the preparatory school.

THE WOOD-WORKING MACHINERY.

THE CARPENTER SHOP.

VII. (A) Solid Analytical Geometry.—Co-ordinate systems in space and study of the line, plane, and quadric surfaces. Loci in space. *Winter term, Sophomore year; 3 exercises per week. Required of students in the Engineering courses.*

VIII. Calculus.—The differentiation of the ordinary functions and applications to geometry and engineering. Taylor's and Maclaurin's theorems, partial differentiation, maxima and minima of functions of one or more variables. Problems in physics and allied subjects. Methods of integration, theory of planimeter, applications to practical problems of geometry and mechanics. *Spring term, Sophomore year, and Fall and Winter terms, Junior year; 3 exercises per week. Required of students in Engineering courses.*

IX. Theoretical Mechanics.—The laws of motion, forces acting at a point, and in a plane, parallel forces and centers of force, frictional resistance, principle of work, motions produced by constant and variable force. Motions of rigid bodies, impulsive forces. Solving of problems. *Spring term, Junior year; 4 exercises per week. Required of all students in the Engineering courses.*

Mechanical Engineering.

PROFESSOR DRAKE, MR. RODMAN, MR. KNOWLES, MR. KNIGHT.

The aim of this department is to give sound theoretical and thorough practical training to students who seek to prepare themselves for useful and responsible positions. Shop-work will furnish such training as will ensure, other things being equal, marked success in mechanical pursuits subsequent to graduation. The regular four years' course deals with mechanical engineering as applicable to the industries carried on in New England and particularly in Rhode Island. Special attention is given to the designs and the economical operation of shops and mills, and of manufacturing and industrial machinery. The subjects of mechanism, metallurgy, heating and ventilation of buildings, engineering

specifications, and laws of contracts are treated by lectures a text-books. The several laboratories are well equipped for wo ing in wood and metals and for the testing of materials used construction. Students in the course of mechanical engineeri receive instruction in bench-work in wood, wood-turning, patte making, forging, machine-shop work and mechanical drawing.

The carpenter shop contains benches and tools sufficient to a commodate twenty-four students at one time. The subject is d signed to give skill and confidence in working the various kinc of wood, and also to impart a fair knowledge of the principles c building and construction. The wood-turning room contains thi teen lathes, each with its complete set of gouges and turning tool In the same room are benches for pattern-making, and also powe machinery for working wood; such as circular saw, hand-saw, jig saw, surface-planer, buzz-planer, mortising-machine, dowel-machi and others. All students take wood-turning, and during the perio each has practice under the direct charge of the engineer in care c the shop, boiler and engine. The engine is of thirty horse-powe The work in pattern-making given to the students in the mechan cal department consists in the making of selected pieces to illu trate the principles of shrinkage, drafts, finish, core-box makin built-up work, and the general requirements of pattern-making.

The forge shop will accommodate twelve students at one tim It contains twelve forges and anvils, a stock-cutter, a bolt-heade a post-drill, and is well supplied with all the hammers, tongs, an other forge and anvil tools necessary for complete work. A reg lar course is followed here as in other lines; and for the student of the agricultural course the work is of such a nature as is foun about a farm. The various operations of drawing, bending, upse ting, and welding are taught and applied in the making of suc useful pieces as staples, hooks, chains, and iron work for far tools. The students of the mechanical department follow a simila course, but in a direction more suited to the machine shop. Bolt nuts, machine-forgings, chisels, and lathe tools are made, and afte

ward put to practical use. Only students in the engineering courses work in the machine shop.

The subject is designed to give a sure knowledge of and intelligent practice in the best modern methods of using the various tools; such as lathes, planers, drills, milling-machines and grinding-machines. Hand work at the bench is offered, and includes instruction in chipping, filing, scraping and finishing. Students of former years have made an engine, dynamo, speed lathe, full set of arbors, set of nut arbors, and a variety of other tools.

In experimental engineering the students make tests of engines, boilers, pumps, steam gauges, injectors and a hydraulic ram. The strength of materials is investigated theoretically in class under the head of mechanics of materials, and practically in the laboratory by conducting tests upon specimens of wood, iron, steel, brick, stone, cement, boiler-plate, etc. In hydraulics, water-meters are calibrated, and measurements of water made by orifices and wiers.

Subjects.

I. Mechanical Drawing.—Elementary principles, use of tools, inking in, geometrical drawing. *Fall and Winter terms, Sophomore year; 2 periods of 2 hours each per week. Required for a degree in Engineering courses.*

II. Mechanical Drawing.—Screw threads, bolts and nuts, shade lines, line shading. *Spring term, Sophomore year; 2 periods of 2 hours each per week. Required for a degree in Engineering courses.*

III. Mechanical Drawing.—Descriptive geometry. *Spring term, Sophomore year; 3 periods of 2 hours each per week. Required for a degree in Engineering courses.*

IV. Mechanical Drawing.—Machine details and parts, tracing, blue printing. *Fall term, Junior year; 4 periods of 2 hours each per week. Required for a degree in Mechanical Engineering.*

V. Mechanical Drawing.—Elements of machine design. *Winter*

term, Junior year; 3 periods of 2 hours each per week. Required for a degree in Engineering courses.

VI. Mechanical Drawing. — Practical machine design. *Fall term, Senior year; 3 periods of 2 hours each per week. Required for a degree in Engineering courses.*

VII. Mechanical Drawing.—Elements of topographical drawing as introductory to land surveying. *Winter term, 1 period of 2 hours per week. Required as introductory to subject II, Civil Engineering.*

VIII. Wood-Working.—Use of tools, bench work and carpentering. *2 exercises of 3 hours each per week. Required for a degree in Engineering courses. Students must receive credit for this subject before beginning the work of the Junior year.*

IX. Wood-Working.—Wood-turning. *Spring term; 3 exercises of 3 hours each per week. Required for a degree in Engineering courses. Students must receive credit for this subject before beginning the work of the Junior year.*

X. (A) Pattern-Making.—*Fall term, Junior year; 2 exercise of 3 hours each per week. Required for a degree in Mechanic Engineering.*

XI. Shop-Work.—Forging, drawing, bending, welding and to dressing. *Winter term, Junior year; 2 exercises of 3 hours each p week. Required for a degree in Mechanical Engineering.*

XIII. Machine-Shop Practice.—*Spring term, Junior year; 2 e ercises per week. Fall term, Senior year; 3 exercises of 3 hours ea per week for students in Mechanical Engineering. Winter and Spri terms, Junior year; 2 exercises of 3 hours each per week for stude in Electrical Engineering.*

XIV. Wood-Carving.—Care and use of tools, geometrical n tives, diaper patterns, incised carving, flat and curved surfa carving, historic ornament, low relief and high relief. *1 exercise o 3 hours per week. Elective.*

XV. Steam Boilers.—Types, construction, strength, uses and management. *Winter term; Senior year; 3 exercises per week. Required for a degree in Mechanical Engineering.*

XVI. Thermodynamics.—As directly applied to the steam engine. Simple and compound engines. *Winter term, Junior year; 3 exercises per week. Required for a degree in Mechanical Engineering.*

XVII. Steam Engineering.—Valve gears, regulators, condensers, power plants, tests. *Spring term, Junior year; 3 exercises per week. Required for a degree in Mechanical and Electrical Engineering.*

XVII. (A) Transporting Machinery.—*Spring term, Senior year; 3 exercises per week. Required for a degree in Mechanical Engineering.*

XVIII. Strength of Materials.—Wood, iron, steel, alloys, brick, stone and cements. *Spring term, Junior year; 3 exercises and 1 laboratory exercise of 2 hours per week. Required for a degree in Mechanical Engineering.*

XIX. Theoretical and Applied Mechanics.—Bodies at rest and in motion, friction of rest and motion, energy, work and power. *Fall term, Senior year; 4 exercises per week. Required for a degree in Mechanical Engineering.*

XX. Graphic Statics of Structures and Machines.—*Winter term, Senior year; 4 exercises per week. Required for a degree in Mechanical Engineering.*

XXI. Hydraulics.—Flow of water through pipes, orifices and sewers. Measurement of flow of rivers and streams. Water power and water supply. *Spring term, Senior year; 4 exercises per week. Required for a degree in Engineering courses.*

XXII. Engineering Laboratory.—Physical tests of materials used in industries and in construction. Tests of machines and ap-

paratus. *Winter and Spring terms, Senior year; 2 lectures and 1 laboratory exercise per week. Required for a degree in Mechanical Engineering.*

XXIII. Mill Construction.—Lectures upon the structural development and design of shops and mills. *Fall term, Senior year; 3 exercises per week. Elective in Engineering courses.*

XXIII. (A) A mill equipment. *Winter term, Senior year; 3 exercises per week. Elective.*

XXIV. Metallurgy.—Cast iron, wrought iron, steel, copper, tin, lead, zinc and alloys. *Fall term, Junior year; 3 exercises per week. Required for a degree in Engineering courses.*

XXV. Textile Machinery.—Lectures upon types of machinery and processes for the manufacture of cotton and woolen goods. *Spring term, Senior year; 3 exercises per week. Elective in Mechanical Engineering course.*

XXVI. Engineering Laboratory. *3 exercises per week. Elective, Senior year.*

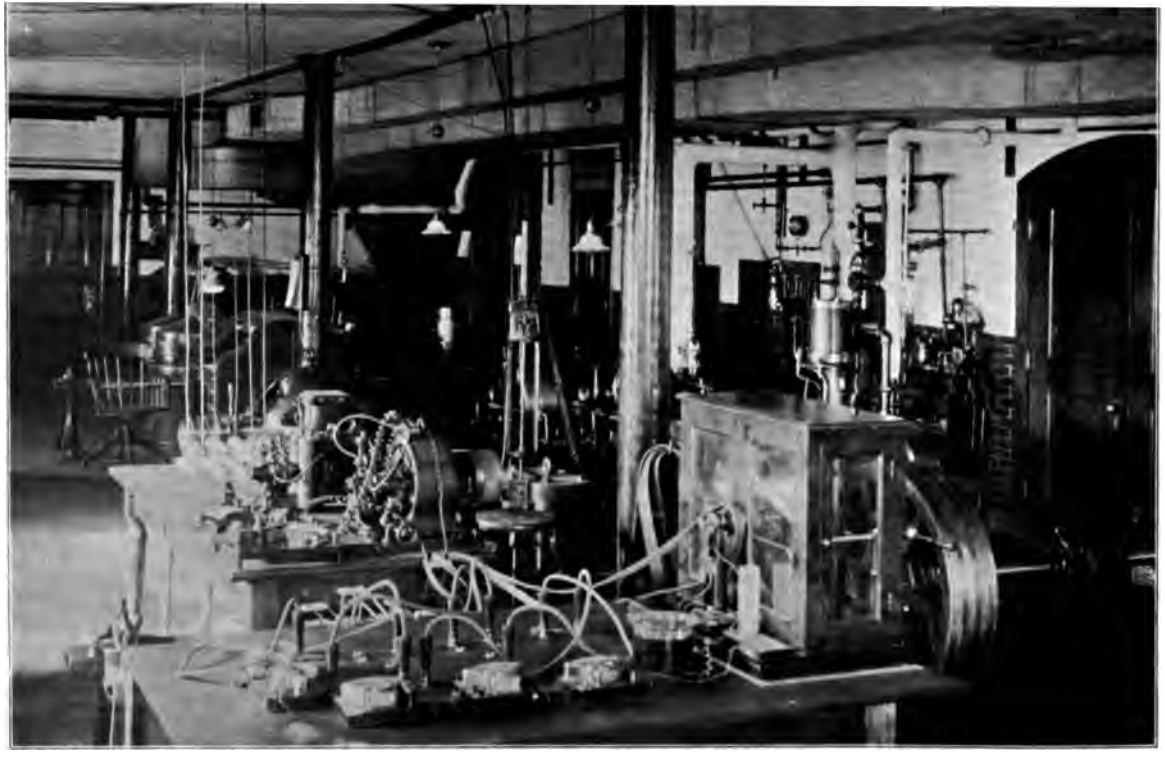
Electrical Engineering.

DR. SCOTT, MR. KENYON.

Electrical engineering is offered to students who have completed subjects I and II in physics.

The studies in electro-technology embrace fundamentally the theory of electricity and magnetism, followed by a thorough treatment of the various technical applications of electricity. These include the theory, design and manipulation of continuous and alternating current generators and motors, transformers, and the storage battery; the design of generating and distributing plants for light and power; electrical testing; electro-metallurgy; telegraphy; telephony; electric signaling.

The equipment of the laboratory which is used for this subject consists of two water-tube boilers of sixty-horse power each; one



THE ELECTRICAL ENGINEERING LABORATORY.

·speed engine of fifty horse-power, of the Armington and Sims
: one thirty K. W. 1000-V. Westinghouse compound single-
ɜ alternator with exciter; one five K. W. Westinghouse rotary
ɜrter giving three-phase alternating current; a one K. W.
.'. direct current motor, arranged with four slip rings, so that
nachine may be used for generating single-phase or three-
ɜ current as desired; two 110-V. direct current generators, one
ty-five K. W., and the other eight K. W.; one four horse-
:r 110-V. direct current motor; a storage battery of 108, 30
ɜre-hour cells—this battery is so connected that voltages may
ɔtained having values of 216, 144, 108, 72, and 54 volts, and all
ler values by 2 volt intervals down to 2 volts, as may be neces-
for testing purposes; several small motors; transformers;
.ensers; arc and incandescent lamps; Lord Kelvin and Weston
neters and ammeters; dynamometers; wattmeters; galvan-
ters; Wheatstone bridges; standard cells, and rheostats. Ad-
ıte means are supplied by a photometry room for testing and
paring electric and other forms of illuminating apparatus.
laboratory has also a two horse-power standard Leffel turbine
:r-wheel, engine lathe, and suitable material for the repairing
making of apparatus.

is believed that this equipment is well selected to give a thor-
ı course in the manipulation of apparatus used in electrical
neering practice at the present time.

he arrangement of motive power in the laboratory is such that
rmination of the efficiency of an isolated plant may be made,
ıding engine and boilers, as well as generators, and a test of
relative economy of the use of exhaust steam from such a plant
general heating purposes.

Subjects.

Electrical Measurements and Direct Current Electrical Ma-
ıery.—The subject embraces a number of lectures, which treat
he theory of electro-magnetism, direct current generators and

motors; the formulæ and methods employed in practice in the winding of armatures, and the care and manipulation of the storage battery.

The laboratory work during the first term includes the manipulation of sine, tangent, differential, astatic, ballistic galvanometers, and methods of electrolysis in the determination of current and electric charge; the Wheatstone bridge and measurement of resistance; condenser measurements of capacity and insulation resistance of cables; comparison of electro-motive forces of various types of battery cells, and determination of internal resistance of such cells. The work in the winter and spring terms covers in order the measurement of efficiency and candle power, and plotting of distribution curves, of incandescent, arc, and Nernst lamps; measurement of the permeability and hysteresis of iron and steel of the quality used in dynamos, motors and transformers; complete tests of series, shunt, and compound wound generators and motors tests of the storage battery as commercially used in power plants methods of wiring for the distribution of direct current for ligh and power; tests of direct current meters. *Throughout the Junio year: 4 exercises per week for students in Electrical Engineering; exercises per week for students in Mechanical Engineering.*

II. Alternating Currents and Alternating Current Machiner —This subject considers the theory of generation and utilizati of alternating currents; the design, construction, and operation single-phase and poly-phase alternating-current dynamos, moto and transformers. Sheldon and Mason's "Alternating Curre Machines" is completed and supplemented by lectures.

The laboratory work which accompanies the subject consists the determination of the characteristics of alternating-current cir cuits having various combinations of inductance and capacity; the shape of E. M. F. and current waves of different machines; measurements of self-inductance, capacity, and mutual induction; measurements of power in single-phase and poly-phase circuits; measurements of total impedance in different circuits; determination of

characteristics of alternators and rotary converters; complete tests of transformers, including those of core and copper losses, regulation, and efficiency. *Throughout the Senior year; 4 exercises per week for students in Electrical Engineering. Other students may elect the work as a three-hour subject.*

III. Telephones.—The subject of telephone engineering is open as an elective to Seniors and others who have had the equivalent Junior electrical work. *Lectures. 2 hours per week, Winter and Spring terms.*

Civil Engineering.

DR. HEWES, PROF. DRAKE, MR. TYLER.

Surveying I.—Study of instruments and simple surveying with the compass, level, and transit. The practice in the field includes laying out and dividing land, leveling for profiles, and simple city work. The true meridian is determined by the sun and polar star. The office work includes plotting and computing from the field notes taken in the above work, also determination of areas. *Sophomore year, Spring term; 4 exercises per week. Required of students in Civil Engineering.*

*Surveying II and III.—Railroad work, including a reconnoissance, preliminary and location survey of a short line of railroad in vicinity of Kingston. A complete preliminary estimate of the cost of the line is made from the notes in the office in the winter, and finished plans drawn. Special attention is also given to surveying for street railroads and highway improvement. *Junior year, Fall and Winter terms; 4 exercises per week. Required of Civil Engineering students.*

IV. Descriptive Geometry (see Mechanics III). — Professor Drake.

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*This course begins early in September and occupies all the student's time till college opens.

V. Strength of Materials (see Mechanics XVIII).—Professor Drake.

VI. Hydraulics (see Mechanics XXI).—Professor Drake.

VII. Masonry Structures (Baker).—This course deals with the materials of masonry, including brick, stone, lime, and cement: the theory of masonry structures, including foundations for buildings, bridges and piers; the construction of retaining walls, culverts, bridge abutments; masonry dams and arches. The student is directed to important articles in the current literature of the subject, and laboratory work is performed at intervals as facilities and ability of the student permit. *Spring term, Junior year; 2 exercises per week. Required of Civil Engineering students.*

VIII. Road Building.—This is a short course in practical highway work. It includes the application of engineering principles to the preliminary survey, and estimate of cost of building and rebuilding roads in town and country. The subjects of surfacing old and new roads with gravel or stone and the drainage and repair of them receive particular emphasis. The details of staking out work, placing catch basins, curbs, culverts, etc., and the crushing and rolling of stone are discussed. The student is directed to state and government reports and required to read selected topics in the literature of the subject. *Spring term, Junior year; 2 exercises per week. Required of Civil Engineering students.*

Drawing.

PROFESSOR DRAKE, MISS ELDRED, MR. KNOWLES.

MECHANICAL DRAWING is required for a period of three years. Students keep notebooks, in which freehand sketches are made from models; and these sketches are afterward worked up into finished drawings. The making of working drawings for some machine completes the subject. Practice in tracing and blue printing is given to all students. The drawing is designed to aid in

A CORNER IN THE STUDIO.

ography and either the touch or sight system of typewriting are taught. Absolute accuracy is required from the first in both subjects, and particular attention is paid to spelling and punctuation.

Subjects.

I. Elementary.—Instruction in principles; dictation. *Throughout the year; 4 exercises per week. Elective.*

II. Advanced.—Dictation, including the following: business letters, legal documents, terms used, deeds, wills, mortgages, contracts, declarations, etc.; hints useful in office work; general dictation. *Throughout the year; 3 periods per week. Elective.*

Military Science and Tactics.

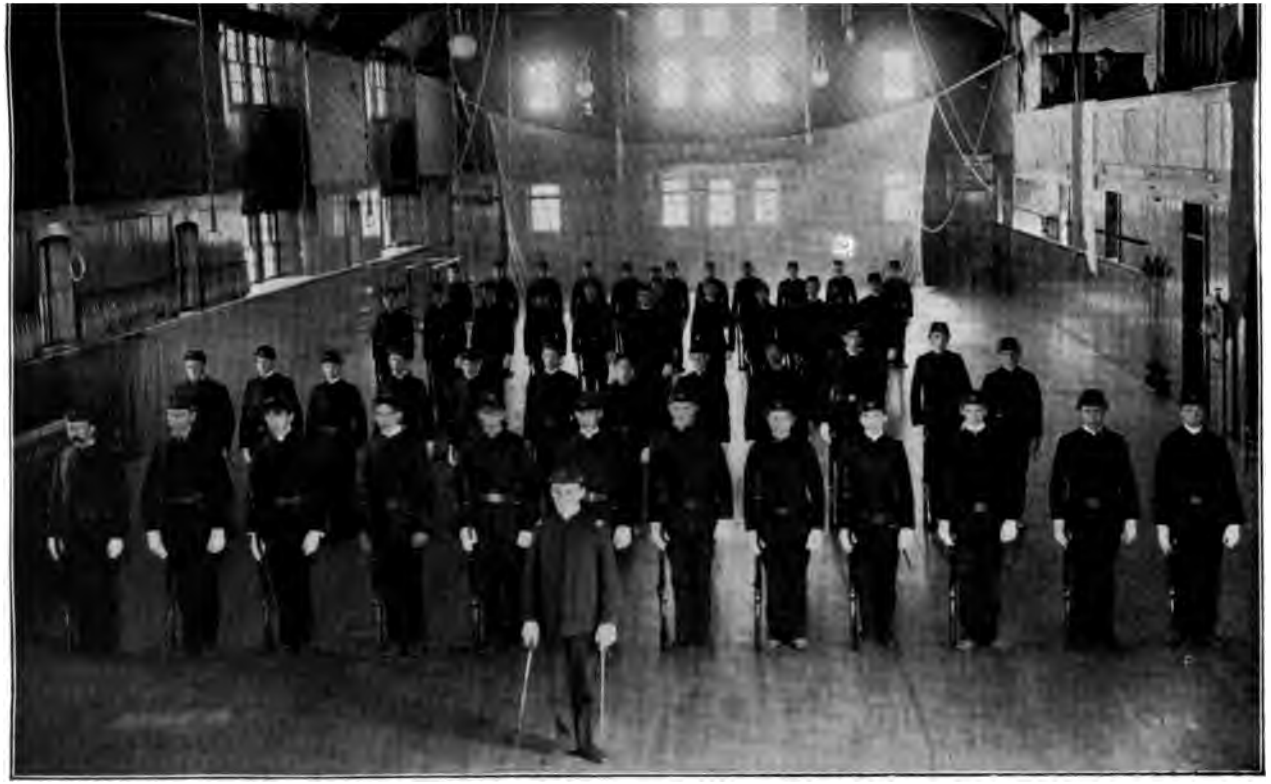
CAPTAIN SPARROW.

All male students not excused by reason of physical disqualification are instructed in military science. The war department furnishes for use in this instruction cadet rifles, equipments, sabres, ordnance, and details an officer of the army to act as instructor. The cadets are organized into a company of infantry, and detachments of artillery and signaling. Theoretical instruction is by means of lectures and recitations. The military exercises improve the physique, and are elevating in influence on the mind and conduct of the cadets.

The organization is as follows:

CAPT. S. E. SPARROW, U. S. A. ..... Commandant.
W. GODDARD, JR ..... Captain.
R. W. KENT ..... 1st Lieutenant.
E. A. TEFFT ..... 2d Lieutenant.
T. G. ALOMÁ ..... 1st Sergeant.
J. GILMAN ..... Quartermaster-Sergeant.
W. A. BALLOU ..... 3d Sergeant.

DRILL ON CAMPUS.



STUDENTS IN DRILL HALL.

F. L. CROSS.....4th Sergeant.
B. H. ARNOLD.....1st Corporal.
L. HARDING.....2d Corporal.
A. B. DAVIS.....3d Corporal.

Subjects.

I. Practical instruction, drills and exercises. Manuals of Instruction U. S. Army. *3 exercises of 1 hour each per week for the entire year except from December 1 to April 15, when only 2 exercises per week are required. All classes.*

II. Lectures in Military Science. *1 lecture, entire year. Seniors and Juniors.*

III. Lectures in Military Science. *1 lecture per week, December 1 to April 15. Sophomores and Freshmen.*

IV. Recitations in Manuals of Instruction U. S. Army. *1 exercise per week. Entire year. Preparatory classes.*

The Courses of Study Leading to a Degree.

Freshman Year: introductory to all courses.

Fall.		*Winter.*		*Spring.*	
English II‡	2	English II‡	2	English II‡	2
German I*	5	German I*	4	German I*	4
Mathematics IV	4	Mathematics VI	3	Mathematics V	—
Physics I	3	Physics I	3	Physics I	—
Physiography II	3			Chemistry I	4
Freehand Drawing I	1	Chemistry I	4		—
Military Drill and Tactics.		Military Drill and Tactics.		Military Drill and Tactics.	

Sophomore Year: for Engineering Courses.

English III	2	English III	2	English III	—
German II.*	3	German III*	3	German III*	—
Chemistry II	3	Chemistry II	3	Physics II	—
Physics II	3	Physics II	3	Mathematics VII (A)	—
Mathematics VII	3	Mathematics VII	3	Mechanics III	—
Mechanics I	2	Mechanics I	2	Mechanics II	—
Military Drill and Tactics.		Military Drill and Tactics.		Military Drill and Tactics.	

Sophomore Year: for Science Courses.

English III	2	English III	2	English III	—
German II*.	3	German III*	3	German III*	—
Chemistry II	3	Chemistry II	3	Chemistry IV	—
Zoölogy I (B)	3	Zoölogy I (B)	3	Zoölogy I (B)	—
Botany I	3	Botany I	3	Botany I	—
Elective†	3	Elective†	3	Elective†	—
Military Drill and Tactics.		Military Drill and Tactics.		Military Drill and Tactics.	

* By advice of the committee on courses of study, French may be substituted for German.

† With the advice of the committee on courses of study, the student chooses his electives from the subjects described on pages 27-63.

‡ The Roman numerals refer to the subject numbers; see pages 28-63.

Junior Year: Engineering Courses.

	Fall.	Winter.	Spring.
Mechanical Engineering.	English IV† 2	English IV† 2	English IV† 2
	Mathematics VIII 3	Mathematics VIII 3	Mathematics IX 4
	Electrical Engineering I 3	Electrical Engineering I 3	Electrical Engineering I 3
	Mechanics IV 4	Mechanics V 3	Mechanics XIII 2
	Mechanics X (A) 2	Mechanics XI 2	Mechanics XVII 3
	Mechanics XXIV 3	Mechanics XVI 3	Mechanics XVIII 4
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
Electrical Engineering.	English IV 2	English IV 2	English IV 2
	Mathematics VIII 3	Mathematics VIII 3	Mathematics IX 4
	Electrical Engineering I 4	Electrical Engineering I 4	Electrical Engineering I 4
	Mechanics XXIV 3	Mechanics XIII 2	Mechanics XIII 2
	Military Drill and Tactics.	Mechanics V 3	Mechanics XVII 3
	Elective* 5	Military Drill and Tactics.	Military Drill and Tactics.
		Elective* 3	Elective* 3

Junior Year: Science Courses.

Agriculture.	English IV 2	English IV 2	English IV 2
	Agriculture I 3	Agriculture II 3	Agriculture III or Horticulture V 3
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective* 12	Elective* 12	Elective* 12
	(At least eight hours must be chosen from subjects bearing directly on agriculture.)	(At least eight hours must be chosen from subjects bearing directly on agriculture.)	(At least eight hours must be chosen from subjects bearing directly on agriculture.)

* With the advice of the committee on courses of study, the student chooses his electives from the subjects described on pages 27–63.

† The Roman numerals refer to the subject numbers; see pages 28–63.

Junior Year: Science Courses.

	Fall.	*Winter.*	*Spring.*
Biology.	English IV† 2	English IV† 2	English IV† 2
	Biology 6	Biology 6	Biology 6
	(Credit will be given for all courses in Zoölogy and Botany, and for Horticulture VI.)	(Credit will be given for all courses in Zoölogy and Botany, and for Horticulture VI.)	(Credit will be given for all courses in Zoölogy and Botany, and for Horticulture VI.)
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective* 9	Elective* 9	Elective* .....
Chemistry.	English IV 2	English IV 2	English IV .....
	Chemistry V (A) 3	Chemistry V (A) 3	Chemistry V (A) .....
	Chemistry V (B) 3	Chemistry V (B) 3	Chemistry V (B) .....
	Chemistry VI 4	Chemistry VI 4	Chemistry VII .....
	Chemistry III 3	Chemistry VIII 2	Chemistry X .....
	Military Drill and Tactics.	Chemistry IX 3	Chemistry XI .....
	Elective (not a chemical subsubject)* 3	Military Drill and Tactics.	Chemistry XII .....
		Elective (not a chemical subject)* 3	Military Drill and Tactics.
			Elective (not a chemical subject)* .....
General Science.	English IV 2	English IV 2	English IV .....
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective* 15	Elective* 15	Elective* .....
	(A minimum of six hours of science must be chosen.)	(A minimum of six hours of science must be chosen.)	(A minimum of six hours science must be chosen.)

* With the advice of the committee on courses of study, the student chooses his electives from subjects described on pages 27–63.

† The Roman numerals refer to the subject numbers; see pages 28–63.

Senior Year: Engineering Courses.

	Fall.	Winter.	Spring.
Mechanical Engineering.	Political Science V†..... 3	Political Science VI†..... 3	Political Science VI†..... 3
	Mechanics VI..... 3	Mechanics XX..... 4	Mechanics XVII (A)..... 3
	Mechanics XIX..... 4	Mechanics XV..... 3	Mechanics XXI..... 4
	Mechanics XIII..... 3	Mechanics XXII..... 2	Mechanics XXII..... 2
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective..... 3	Elective..... 3	Elective..... 3
	(To be chosen from the following: Mechanics XXIII, XXVI, Electrical Engineering II, Mathematics IX, X, Civil Engineering.)	(To be chosen from the following: Mechanics XXIII (A), XXVI, Electrical Engineering II, Mathematics IX, X, Civil Engineering.)	(To be chosen from the following: Mechanics XXV, XXVI, Electrical Engineering II, Mathematics XI, Civil Engineering.)
Electrical Engineering.	Political Science V..... 3	Political Science VI..... 3	Political Science VI..... 3
	Electrical Engineering II.... 4	Electrical Engineering II.. 4	Electrical Engineering II.... 4
	Mechanics VI..... 3	Mechanics XV..... 3	Inspection Excursions.
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective..... 6	Elective..... 6	Elective..... 6
	(At least three hours must be chosen from the departments of Mathematics, Mechanics or Civil Engineering.)	(At least three hours must be chosen from the departments of Mathematics, Mechanics or Civil Engineering.)	(At least three hours must be chosen from the departments of Physics, Mechanics, Mathematics or Civil Engineering.)

Senior Year: Science Courses.

Agriculture.	Political Science V..... 3	Political Science VI..... 3	Political Science VI..... 3
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective*.....14	Elective*.....14	Elective*.....14
	(At least eight hours must be chosen from subjects bearing directly on agriculture.)	(At least eight hours must be chosen from subjects bearing directly on agriculture.)	(At least eight hours must be chosen from subjects bearing directly on agriculture.)

* With the advice of the committee on courses of study, the student chooses his electives from the subjects described on pages 27-63.

† The Roman numerals refer to the subject numbers; see pages 28-63.

Senior Year: Science Courses.

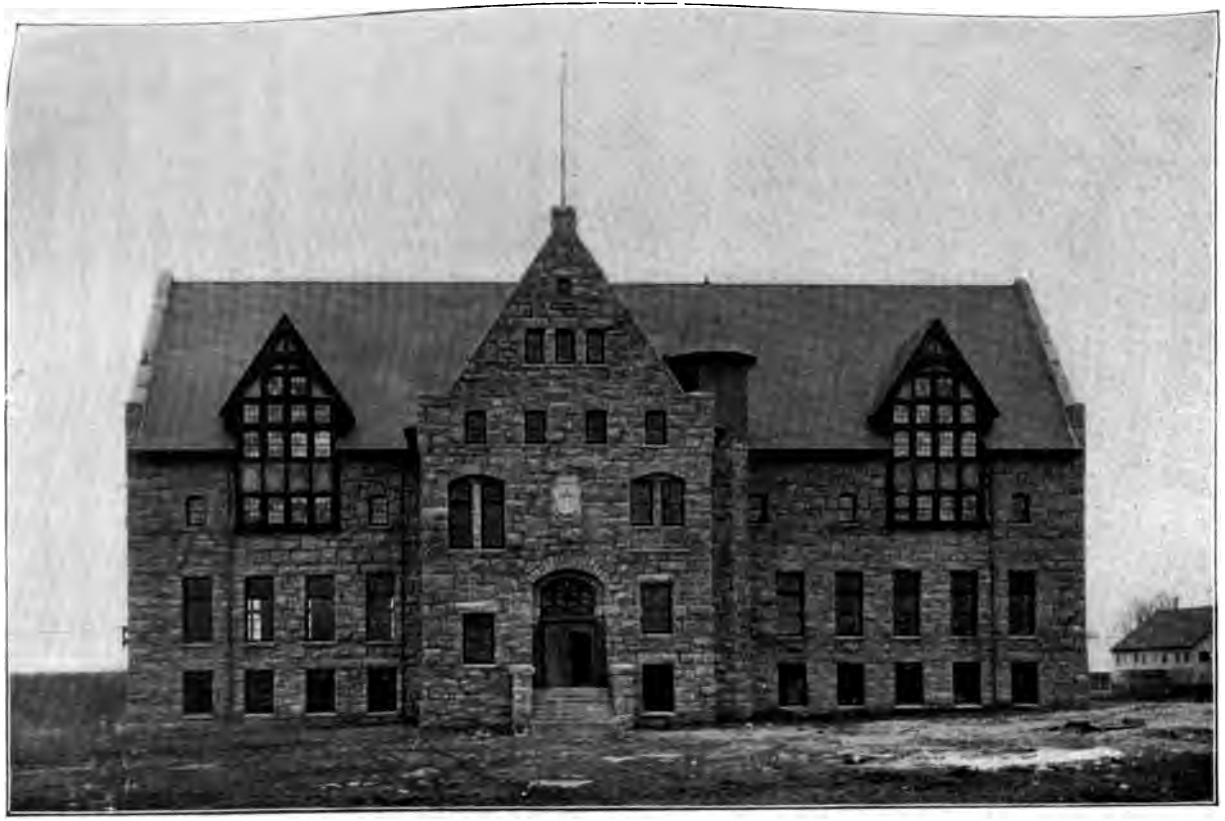
	Fall.	*Winter.*	*Spring.*
Biology.	Political Science V† 3	Political Science VI† 3	Political Science VI†.....
	Biology 9	Biology..... 9	Biology .....
	(Credit will be given for all courses in Zoölogy and Botany, and for Horticulture VI.)	(Credit will be given for all courses in Zoölogy and Botany, and for Horticulture VI.)	(Credit will be given for courses in Zoölogy and Bot and for Horticulture VI.)
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective*..... 3	Elective*..... 3	Elective*.....
Chemistry.	Political Science V..... 3	Political Science VI 3	Political Science VI.....
	Chemistry XIII..... 3	Chemistry XIII..... 3	Chemistry XVII .....
	Chemistry XIV..... 5	Chemistry XX (A) 3	Special Chemistry.....
	Chemistry XII..... 3	Chemistry XVI or XVIII.. 3	Chemistry XVI or XIX...
	Chemistry XX	Chemistry XX	Chemistry XX .....
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective..... 3	Elective 3	Elective ....
	(To be chosen from the following: History II, IV, French, German.)	(To be chosen from the following: History II, IV, French, German, Psychology.)	(To be chosen from the lowing: History II, IV, Fre German, Psychology, Cl istry XV.)
General Science.	Political Science V 3	Political Science VI 3	Political Science VI..... ..
	Military Drill and Tactics.	Military Drill and Tactics.	Military Drill and Tactics.
	Elective*.....12	Elective*.....12	Elective*.....
	(A minimum of six hours of science must be chosen.)	(A minimum of six hours of science must be chosen.)	(A minimum of six hour science must be chosen.)

* With the advice of the committee on courses of study, the student chooses his electives from subjects described on pages 27-63.

† The Roman numerals refer to the subject numbers; see pages 28-63.

TAFT LABORATORY. DAVIS HALL. BOARDING HALL.

THE PREPARATORY SCHOOL.



LIPPITT HALL.

The Preparatory School

OF THE

Rhode Island College of Agriculture and Mechanic Arts.

The preparatory school is intended for young men and young women who have not the privileges of a high school, and also for those who, because of maturity, are out of touch with the public schools.

Requirements for Admission to Preparatory School.

Candidates for admission must bring testimonials of good character, and must be not less than fifteen years of age.

For admission to the first year in the preparatory school, oral or written examinations will be given in arithmetic, geography, English grammar and United States history. In the arithmetic examination special attention will be paid to common and decimal fractions, denominate numbers, percentage and interest. Whitney and Lockwood's English grammar and Fiske's United States history are recommended for preliminary study. In English, each candidate will be required to answer certain questions in grammar, and to write a short composition correct in spelling, capitalization, punctuation and paragraphing, on a subject announced at the time of the examination. Candidates will be expected to show familiarity with the following works: Hawthorne's The Great Stone Face and The Snow Image; Tennyson's Idylls of the King; De-Foe's Robinson Crusoe; The Arabian Nights; Macaulay's Lays of Ancient Rome.

Students wishing to enter the second-year class in this scho will be examined in geography and United States history, arith metic, algebra to quadratics, and English. In 1903 the Englis requirements will cover Shakespeare's The Merchant of Venic Macbeth and Julius Cæsar; Addison's The Sir Roger de Coverle Papers; Scott's Ivanhoe; Lowell's The Vision of Sir Launfal Coleridge's The Ancient Mariner; George Eliot's Silas Marner.

Any mature person who can satisfy the examining committe that he has the capacity to do the work, may enter on probatic and take the examination later.

Students are required to elect one of the subjects offered und electives, which their previous training has fitted them to tak While the course of study is graded in two classes, designated the First and Second Year Preparatory, a mature student may ta such studies from both grades as are essential for preparation the college.

Students desiring special work in mechanics, who are not p pared to enter the regular courses leading to a degree, may comb with work in the preparatory school such subjects in mechanic may fit their especial needs. The successful completion of suc special course will lead to a certificate covering the work comple

Course of Study.

All subjects continue throughout the year unless otherwise stated.

First Year Preparatory.

Required. per

Algebra. (Hall & Knight). To quadratics.....

English. Covers requirements for admission to second year.....

General History (Myers), entire book.....

Plant Life. Same as given in Agricultural High School.....

Military Drill.

Elective.—Choose one subject.

Freehand Drawing (Fall and Spring terms))

Wood-Carving (Winter term)..... .....)

Carpentering.....

Second Year Preparatory.

Algebra. From quadratics (Fall and Winter terms) }
Advanced Arithmetic (Spring term) ..... } 3
Geometry (Hobbs). Plane Geometry with original demonstrations..... 4
English. College entrance requirements completed. See pp. 18–20..... 3
Latin (Lindsay and Rollins's Easy Latin Lessons, entire book. Via Latina, twenty-five pages)..... 5
Military Drill.

Elective.—Choose one subject.

Practical Mechanics..... 1
Stenography and Typewriting..... 4
Any subject given the first year..... 1

General Information.

Information with regard to the calendar of the school, the cost of living, regulations, etc., may be found on the first twenty-six pages of this catalogue. For other information apply to

M. H. TYLER, *Master*,

KINGSTON, R. I.

THE AGRICULTURAL HIGH SCHOOL.

HARVESTING POTATOES.

The Agricultural High School

OF THE

Rhode Island College of Agriculture and Mechanic Arts.

This course is designed to occupy a position somewhat similar to that of the Manual Training High School of the city, except that it offers agriculture in place of mechanics. It aims to do for those interested in rural pursuits what the Manual Training High School does for those interested in mechanical lines. It offers to the student fitted to enter a high school an opportunity to take much of the regular work of a high school course, combined with work in agriculture which will be of direct practical value on the farm. This course aims to put the student in the field, the barn and the greenhouse, just as the manual training course puts him at the bench. Classroom instruction goes hand in hand with laboratory practice, emphasizing both the how and the why of agricultural methods.

Requirements for Admission.

The requirements for admission are the same as for admission to the preparatory school. (See pp. 71–72.) With the consent of the examining committee a mature person who has not recently attended school may, without examination, enter on probation.

Subjects of Study.

Beginning with the first year the subject entitled "The Soil and the Plant" treats of the plant, the more important characteristics

of different soils, considering their physical make-up, their crop-producing power and the physical properties most essential in a fertile soil, the forms of plant-food available, and how best applied, the changes which take place in the soil, the mixing of fertilizers and interpretation of fertilizer formulæ. Much attention is given to the principles of tillage and to methods of increasing and conserving soil moisture. The subject includes simple experiments in the laboratory, tillage experiments and methods of tile drainage, together with a study of the propagation and management of plants in the greenhouse.

The spring term is given to a study of vegetable gardening, particular attention being paid to the methods employed by market gardeners. Experience is gained in the starting of plants under glass, the making and management of hotbeds, the sowing of seeds, the care and transplanting of plants, etc.

In the fall term of the second year rotations and their importance in agricultural practice, meadows, pastures and soiling, together with the leading farm crops and their methods of management are discussed. The subject of farm animals includes a brief study o anatomy, physiology and hygiene, the essential points of breedi ng a glance at the most prominent characteristics of a few lead in breeds and practice in judging.

In the winter term the subject of farm mechanics embrace s study of the simpler laws of mechanics in use in agricultural i n plements, farm power, principles of draft and construction, w i practice in taking down and setting up agricultural machinery, e The work with animals gives chief attention to the dairy, includ i the feeding and care of dairy cows, food requirements, composit i of foods and compounding of rations, together with the care a handling of milk.

The study of fruit-growing in the spring term includes meth of propagation, planting, pruning and caring for fruit trees a small fruits, methods of fighting insects and fungi, etc. In ani husbandry the spring term is occupied with poultry culture,

cluding practice in incubating, brooding, care and feeding of chicks.

So far as possible the laboratory work follows the lines of instruction as laid down for the different years; but since laboratory work in agriculture must be to a great extent dependent upon the season, the work in the field does not always correspond with the work in the classroom at the time. The laboratory work includes practical experience in such subjects as tile drainage, the management of farm machinery, the tilling of land, the pruning of trees, packing of apples, grafting and making of cuttings, the preparation of insecticides and fungicides, the sowing of seeds and handling of plants under glass and in the field, the feeding, care and management of cows, the handling of milk, judging of stock, rearing of chicks and other operations of the farm.

The subject of plant life running through the first year is arranged with special reference to the needs of agricultural students. The principles studied in geometry are applied to measuring land. Business arithmetic and bookkeeping deal with the every-day business of the farmer. The subject of social problems deals with the relation of the farmer to society. The complete course of study is as follows:

Course of Study.

All subjects continue throughout the year unless otherwise stated.

First Year, Agricultural High School.

Required.	Hrs. per week.
Algebra. (Hall & Knight). To quadratics	4
English. Covers requirements for admission to second year preparatory school	5
Plant Life	3

The agricultural plant, its environment, nutrition, growth and reproduction; text-book supplemented by reading, laboratory and field work. Special study of rose family, clover family, grass family and weed plants; seed testing for germination and purity. Plant diseases and bacteria.

e Soil and the Plant (Fall and Winter term).

The soil: constituents; factors determining fertility; texture, underdraining and its influence on texture; tillage, its objects and methods; humus, its effects and how obtained; plant-food, essential elements, where obtained, their effect upon the plant; fertilizers and fertilizer formulæ; soil moisture, capacity for and conservation. The plant: general demands, demands from the soil, demands from the air; how the plant lives; propagation.

Vegetable Gardening (Spring term).

Market gardening methods. Seed-sowing, transplanting, watering, making and management of hotbeds. Study of different vegetable garden crops.....

Military Drill.

Electives.—Carpentering, Forging, Freehand Drawing, Mechanical Drawing, Stenography.

Second Year, Agricultural High School.

FALL TERM.

Required. H per w

Algebra. Quadratics.....

Geometry (Hobbs). Plane Geometry.....

General History (Myers).....

Farm Crops.....

Rotations, advantages, dangers from neglect. Pastures, permanent, in rotation; meadows, soiling, farm crops and their management.

Animals and their management.....

Anatomy, physiology, hygiene, breeding, judging.

Military Drill.

Electives.—Forging, Carpentering, Freehand Drawing, Mechanic Drawing, Stenography.

WINTER TERM.

Business Arithmetic and Farm Bookkeeping.....

Geometry.....

General History.....

Farm Mechanics..... 3

Mechanical laws used in farm machinery, farm power, principles of draft and construction, taking down and setting up of agricultural machinery.

Dairying..... 3

Feeding and care of dairy cows, food requirements, compounding of rations, care and handling of milk.

Military Drill.

Electives.—Forging, Carpentering, Mechanical Drawing, Stenography.

SPRING TERM.

Social Problems of the Farmer..... 3

General History..... 3

English. Study of authors, with theme writing..... 3

Fruit-Growing..... 3

Orchard and small fruits, grafting plants, pruning, methods of fighting insects and fungi.

Poultry Culture..... 3

Incubating, brooding, care and feeding of chicks.

Military Drill.

Electives.—Forging, Carpentering, Freehand Drawing, Mechanical Drawing, Stenography.

The Nature Guard.

The Nature Guard is an organization of young people formed for the purpose of awakening in its members a livelier interest in the things of outdoor life. Its primal object is to stimulate observation and to furnish a key to the coyly hidden secrets of nature, while underneath and behind it all is the desire to instil a love of nature and of country life.

The boys and girls in one school, or in one room, if the school is graded, form themselves into a band and elect officers, which are a Spy and a Guardian. Each band fixes its own times of meeting and adopts its own methods of procedure. Enrolment cards, to be signed and returned, are furnished from headquarters. Printed leaflets are mailed monthly during the school-year, and monthly reports giving observations of their own are asked from the members.

The following bands were enrolled during the school-year 1901–1902:

Arctic Grammar School Band, Arctic, R. I. Margaret Banno[illegible] Spy; Joseph Flanagan, Guardian.

The Boston Spies, Boston, Mass. John Butler, Spy; Per Watson, Guardian.

Buckfield Nature Band, Buckfield, Maine. Leon L. Purkis, Sp[illegible] Cleora M. DeCoster, Guardian.

Conanicut Junior Naturalists, Jamestown, R. I.

Edgewood Explorers, Edgewood, R. I. Ada Livesey, Sp[illegible] Gladys Freeman, Guardian.

The Fairies, Phenix, R. I. Beatrice E. LeValley, Spy; Gertrude I. Collins, Guardian.

Family Band, Peru, Maine. Mrs. M. V. Hall, Mother.

Greenwood Band, Providence, R. I. Chas. H. Shippee, Spy; Fanny Whipple, Guardian.

Harris Avenue Band, Riverpoint, R. I. Richard Hughes, Spy; Gertie McIntyre, Guardian.

Harris Avenue Junior Band, Riverpoint, R. I. Andrew Gregory, Spy; Willie O. Carpenter, Guardian.

Hiawatha Band, Phenix, R. I. Andrew Denegan, Spy; Ethel Mowry, Guardian.

Ingalls School Nature Band, Lynn, Mass. Edward Dearborn, Spy; Ethel S. Fisher, Guardian.

I Spy Club, Lynn, Mass. Harry Kane, Spy; Ethel Waitt, Guardian.

Laurel Lake Band, Kingston, R. I. Helen Curtice, Spy; Walter Knowles, Guardian.

Mary Dickerson Band, Providence, R. I. Marian Hubbard, Spy; James Taylor, Guardian.

Mayflower Band, Madison, Conn. Maude E. Munger, Spy; Jennie M. Whedon, Guardian.

McKinley Band, Phenix, R. I. Raymond Coogan, Spy; Jennie Brown, Guardian.

Outdoors Band, Westerly, R. I. Robert Kessel, Spy; Carrie Syme, Guardian.

Outlook Band, Providence, R. I. Florence Conlan, Spy; Joseph Olney, Guardian.

Sharp-Eyes Band, Lynn, Mass. John Marks, Spy; Grace Nourse, Guardian.

Pink Band, West Kingston, R. I. Susan L. B. Albro, Spy; Louis A. Worden, Guardian.

Protection Band, Lynn, Mass. James Travers, Spy; Frank Maloney, Guardian.

Sylvan Band, Sylvania, Pa. Alice M. Evans, Spy; B. Ruby Rockwell, Guardian.

Treasure Seekers, Woonsocket, R. I. Ruth Osborn, Spy; Eliza C. Macdermott, Guardian.

Wake Robin Band, North Norway, Maine. Lona E. Noble, Spy; Ethel F. Upton, Guardian.

Washington Band, North Scituate, R. I. Frances R. Page, Spy; Bessie Knowlton, Guardian.

Waterton Band, Providence, R. I.

Wide Awake Band, Hope, R. I.

Wide Awake Spies, Taunton, Mass. Clarence Hagar, Spy.

Wide Awake Band, Yantic, Conn. Ella Peck, Spy; Ernest Smith, Guardian.

Wild Rose Band, Liberty, R. I. L. Vera Grinnell, Spy; Lydia R. Sherman, Guardian.

Woodland Scouts, Edgewood, R. I. Sidney Boardman, Spy; John Greene, Guardian.

Young Observers of Nature, North Scituate, R. I. Frances Page, Spy; Bessie Knowlton, Guardian.

Religious Organizations.

Young Men's Christian Association.

W. GODDARD, JR., '03 ..... President.
R. W. KENT, '03 ..... Vice-President.
W. A. BALLOU, '04 ..... Secretary.
C. E. WHITMORE, '03 ..... Treasurer.

Young Women's Christian Union.

NELLIE A. HARRALL, '05 ..... President.
MARION G. ELKINS, '06 ..... Vice-President.
S. ELIZABETH CHAMPLIN, '05 ..... Secretary.
LILLIAN M. GEORGE ..... Treasurer.

Alumni Association.

WARREN B. MADISON, '94..... .....President.
National Farm School, Doylestown, Pa.

ALBERT L. KENYON, '96.....Vice-Pres
59 Camp Street, Providence, R. I.

EDNA M. CARGILL, '98.....Secretary–Trea
Abbott Run, R. I.

Committee on Athletics.—R. W. PECKHAM, '94,
G. E. ADAMS, '94,
J. F. KNOWLES, '94.

College Visiting Committee.—

CHAPIN T. ARNOLD, '94,
JOHN E. HAMMOND, '95,
ADELAIDE M. GREENMAN PECKHAM
GERTRUDE M. HANSON, '97,
MARTHA R. FLAGG, '98,
CLIFFORD B. MORRISON, '99,
J. RALEIGH ELDRED, '00,
ARTHUR E. DENICO, '01,
RALPH N. MAXSON, '02.

* Students.

Graduate Students.

Briggs, Nellie Albertine, B. S., 1901 ..... Kingston.
Smith, Howard Dexter, B. S., 1901 ..... North Scituate.
Steere, Anthony Enoch, B. S., 1900 ..... Chepachet.

Graduates of 1902.

Clarke, Latham, Chem. ..... West Kingston.
Assistant in Chemistry, Brown University.
Ferry, Oliver Needham, Mech ..... Palmer, Mass.
With Providence Engineering Co., Providence.
Maxson, Ralph Nelson, Chem. ..... Westerly.
Graduate Student, Yale University.
Pitkin, Robert William, Mech ..... Cowesett.
With Eastern Shipbuilding Co., New London, Conn.

Cornell, Bailey Jordan, Eng ..... Croton-on-Hudson, N. Y.
Began engineering work for State of New York before graduation.

Seniors.

Barber, Kate Grace, Gen. Sci. ..... Carolina.
Cooke, Laura Marion, Gen. Sci. ..... Narragansett Pier.
Goddard, Warren, Jr., Mech ..... Brockton, Mass.
Keefer, Edith L., Biol ..... Innwood, N. Y.
Kent, Raymond Warren, Chem. ..... Woonsocket.
Quinn, Mary Louise, Biol ..... Wakefield.

* From January 1, 1902 to January 1, 1903.

Rodman, Edith Stoughtenburg, Gen. Sci. ..... Kingsto
Tefft, Ernest Allen, El. Eng. ..... Hope Valle
Whitmore, Charles Ely, El. Eng. ..... Holyoke, Ma:

Juniors.

Alomá, Tiberio Garcia, El. Eng. ..... Cienfuegos, Cul
Ballou, Willard Alger, Biol. ..... Lawrence, Ma
Clancy, John, Agr. ..... Mystic, Con
Cross, Frederick Lawrence, El. Eng. ..... Narragansett Pi
Rodman, Walter Sheldon, El. Eng. ..... Wakefiel

Sophomores.

Bolster, William Arthur ..... Valley Fall
Carley, Frederick James ..... Tewksbury, Mas
Champlin, Sarah Elizabeth ..... Kingsto
Dow, Victor Wells ..... Hartland, M
Gilman, Jean ..... Gilman, M
Harrall, Nellie Armstrong ..... Wakefiel
Schofield, James Frederick ..... Bristo

Freshmen.

Arnold, Benjamin Howard ..... East Greenwicl
Berry, Wallace Noyes ..... Chatham, Mas
Clark, Rollin Grover ..... Narragansett Pie
Elkins, Marion Graham ..... Amesbury, Mas
Flemming, Edith May ..... Valley Fall
Harding, Lee LaPlace ..... Lyme, Con
Hills, Clarence Arnold ..... Torrington, Con
Keyes, Frederick George ..... Rochester, N. Y
Knight, Mildred Frances ..... Exeter, N. H
Martinez, Rolando ..... Havana, Cub

Nichols, Howard Martin..... Kenyon.
Sisson, Cora Edna..... Wickford.
Slocum, Percy Wilfred..... Kingston.

Specials.

Barnes, Arthur Murray..... Albany, N. Y.
Hayes, Elbert Seymour..... Block Island.
Hoxsie, Fred Clifford..... Woodville.
Hoxsie, Willard Munroe..... Quonochontaug.
Macdonald, James Merton..... Wood River Junction.
Murray, James Lee..... Narragansett Pier.
Patterson, Percy Milton..... Providence.
Peckham, Arthur Noyes..... Kingston.
Roche, Edward..... Providence.
Varbedian, Toroo Assadoor..... Killis, Turkey.
Wells, Thomas Perry..... Kingston.
White, Mabelle Frances..... Amesbury, Mass.

Preparatory School.

Aldrich, Myron Olney*..... Woonsocket.
Bell, Leroy Valentine..... Wakefield.
Bristow, Dennis Francis..... Narragansett Pier.
Bristow, John, Jr..... Narragansett Pier.
Brougham, Joseph Stephen..... Peace Dale.
Bryant, Hershey Sneath..... Gardner, Mass.
Bundy, Willard Clifford..... Little Compton.
Clark, George Thomas..... Indianapolis, Ind.
Clemens, Fred Joseph..... Peace Dale.
Crandall, LeRoy Prince..... Wakefield.
Curtice, Anna Helena..... Kingston.
Davis, Augustus Boss..... Kingston.

* Taking partial work in the college.

Dawley, Percy William.....Kenyon.
De Assis-Brasil, Leonardo.....São Gabriel, Rio Grande do Sul State, Brazil
Dixon, Arthur.....Worcester, Mass.
Dixon, Melvin Erastus.....Worcester, Mass.
England, Fred Dexter.....Lonsdale.
Fagan, Hugh Jean.....Peace Dale.
Ferry, Jay Russell*.....Palmer, Mass.
Gammon, Fred Battles.....Brockton, Mass.
Gardiner, Harold Lincoln.....Wakefield.
George, Susan Frances.....Amesbury, Mass.
Gleason, Walter Carpenter.....Providence.
Gough, Harry Ogden.....Peace Dale.
Grinnell, George Francis*.....Narragansett Pier.
Hendrich, Augustus Charles William.....Kingston.
Hevia, Horacio.....Havana, Cuba.
Hodges, Frank Blake, Jr.....Cowesett.
Hubbard, Frank Wilson.....Providence.
Kenyon, Susan Elmora.....Usquepaugh.
Kuhry, Curtice.....Kingston.
Ladd, Elwood Shepard.....Central Village, Conn.
Lamond, John Kenyon.....Usquepaugh.
Macomber, Miner Sanford.....Kingston.
Martin, Francesco Jose.....Cartago, Costa Rica.
Mugica, Alfredo.....Havana, Cuba.
Murray, Prudence.....Narragansett Pier.
Northup, Mary Hazel.....Kingston.
Potter, Mabel Endora.....Wakefield.
Richardson, Carroll Morton.....Cumberland Mills, Me.
Rockwell, Rubie Belle.....Sylvania, Pa.
Schaeffer, George Joseph.....Peace Dale
Sheldon, George Ware.....Wakefield
Sherman, Benjamin Francis.....West Kingston
Smith, Bert Cleveland.....Tarkiln

Spensley, Jessie Mae.....Clarksville, N. Y.
Towers, Elizabeth Ann.....Peace Dale.
Tucker, Ellen Capron.....Kingston.
Tucker, Ethel Aldrich*.....Kingston.
Tucker, Hannah Mahala.....West Kingston.
Urrutia, Carlos.....Comerio, Porto Rico.
Watson, Walter Irving.....Wakefield.
Weaver, Bertha Isabel.....Peace Dale.
Williams, Hazel Eugene.....Sylvania, Pa.
Yost, Isaac Harrison.....Peace Dale.

Specials in Shop-Work and Wood-Carving.

Barrios, Joseph.....Havana, Cuba.
Brown, Mary J.....Kingston.
Brown, Martha Browning.....Kingston.
Clark, Mrs. Fred.....Kingston.
Greenman, Mrs. A. A.....Kingston.
Negus, Percy Acton.....Kingston.
Scott, Mrs. A. C.....Kingston.

Course in Poultry-Keeping.

Angell, Caleb Thomas.....Scituate.
Anthony, Joseph Jones.....North Egremont, Mass.
Binns, Douglass.....Methuen, Mass.
Demary, Jackson.....Charlestown, N. H.
Dilatush, Robert Mortimer.....Robbinsville, N. J.
Dunn, John Francis.....Manton.
Gage, Isaac Bradlee.....West Medford, Mass.
Gardner, Fred Foster.....Haverhill, Mass.
Garabrant, Charles Roder.....East Orange, N. J.
Greenman, Fred Howard.....Somerville, Mass.

* Taking partial work in the college.

Handy, Robert Sylvan.....Cataumet, Mass
Ingalls, Henry Rockafellar.....Nortonhill, N. Y
Lee, Harry Moulton.....Durham, N. H
Linday, Ture Ferdinand.....Erie, Pa
Marden, Henry Rupert.....Brookline, Mass
Morrisey, William Stoker.....Halifax, N. S
Robinson, Theodore Richard.....Wye, Kent, England
Rounds, Hiram Augustus.....Bristol
Shearer, Walter Jonathan.....Vinemont, Pa
Stocking, James Magee.....Weatogue, Conn
Stone, Clarence Haskell.....Providence
Stryker, John Gafton.....Bernardsville, N. J
Spalding, Arthur Centennial.....Detroit, Mich
Sullivan, John Francis.....South Portsmouth
Titus, William Carleton.....Albany, N. Y
Walmsley, Fred.....Bristol
White, Ernest Lambert.....Somerville, Mass

Course in Farm-Practice.

Ferris, William H.....Washington, D. C
Hill, Frank Ernest.....North Attleboro, Mass
Smith, Bert Cleveland.....Tarkiln
Varbedian, Toroo Assadoor.....Killis, Turkey

Total..... 146

Graduates.

1894.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
ADAMS, GEORGE EDWARD . . . . Kingston.	Agr.	Assistant in charge of Field Experiments, R. I. Agr. Experiment Station.
AMMONDS, GEORGE CLARENCE . . Kingston.	Mech.	Railroad Postal Clerk, on N. Y., N. H. & H. R. R.
ARNOLD, CHAPIN TRAFFORD . . . Providence.	Agr.	Electrician, Office 107 Westminster St., Providence.
BURLINGAME, GEORGE WASHINGTON, Chepachet.	Agr.	Teacher and Poultryman.
CLARK, HELEN MAY . . . . . B. L., Smith College, 1899. 12 East 70 St., N. Y. City.		Private Secretary.
KNOWLES, JOHN FRANKLIN . . . Kingston.	Mech.	Assistant Wood-Working Dept., R. I. C. A. & M. A.
MADISON, WARREN BROWN . . . Doylestown, Pa.	Agr.	Professor of Horticulture, The National Farm School.
MATHEWSON, ERNEST HOXSIE . . Ph. B., Brown University, 1896. Tariffville, Conn.	Mech.	In charge of Experiments under Division of Soils, Department of Agriculture.
PECKHAM, REUBEN WALLACE . . . Melville Station, Newport.	Agr.	Market Gardener.
RATHBUN, WILLIAM SHERMAN . . Wakefield.	Agr.	Practicing Veterinary.
RODMAN, GEORGE ALBERT . . . Providence.	Mech.	Assistant, Bridge Dept., Room No. 201, N. Y., N. H. & H. R. R. Co.
SARGENT, CHARLES LAWRENCE . . Ph. D., University of Pennsylvania, 1900. Newark, New Jersey.	Agr.	Chemist, Murphy Varnish Co.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
SLOCUM, SAMUEL WATSON . . . . 130 West Broad St., Westerly.	Agr.	Carpenter.
SPEARS, JOHN BARDEN . . . . . Foster Centre.	Agr.	Farmer and Teacher.
SWEET, STEPHEN ADELBERT . . . Slocums.	Agr.	Farmer.
TUCKER, GEORGE MASON . . . . Ph. D., Göttingen, 1899. Columbia, Mo.	Agr.	Agronomist, Agr. Experiment Station; Instructor in Agriculture in the College, University of Missouri.
WILBER, ROBERT ARTHUR . . . East Greenwich.	Mech.	Express Agent.

1895.

ALBRO, LESTER FRANKLIN . . . . Melville Station, Newport.	Agr.	Professional Singer.
BURDICK, HOWLAND . . . . . Kingston.	Agr.	Farm Superintendent, R. I. C. A. & M. A.
CLARKE, CHARLES SHERMAN . . Jamestown.	Mech.	Marine Engineer, Newport and Jamestown Ferryboat Co.
ELDRED, MABEL DEWITT . . . Kingston.		Instructor in Drawing, R. I. C. A. & M. A.
HAMMOND, JOHN EDWARD . . . . Jamestown.	Agr.	Farmer.
OATLEY, LINCOLN NATHAN . . . Wakefield.	Mech.	Contractor and Builder.
SCOTT, ARTHUR CURTIS . . . . Ph. D., Univ. of Wisconsin, 1902. Kingston.	Mech.	Professor of Physics, R. I. A. & M. A.
TEFFT, JESSE COTTRELL . . . . Jamestown.	Mech.	Purser, Newport and James Ferryboat Co.
WINSOR, BYRON EDGAR . . . . Coventry.	Mech.	Poultryman and Teacher.

1896.

BROWN, MAY (MRS. CHARLES A. WHITE) . Narragansett Pier.	At home.
GREENMAN, ADELAIDE MARIA (MRS. R. WALLACE PECKHAM) . . Melville Station, Newport.	At home.

ADDRESS.	COURSE.	OCCUPATION.
ERT LEWIS	Mech.	Printer, Silver Spring Bleaching and Dyeing Co.
., Providence.		
'HAN LEWIS CASS . .	Agr.	Railroad Postal Clerk on N. Y., N. H. & H. R. R.
R FRANCIS	Mech.	Calico Printer, Silver Spring Bleaching and Dyeing Co.
a St., Providence.		
MES EMERSON . . .	Agr.	Grain Dealer and Teacher.

1897.

WELCOME SANDS . .	Sci.	With P. F. Collier & Son, 31 Washington St., Providence.
RT EDWARDS BROWN.	Mech.	Student, Hartford Theological Seminary.
wn University, 1900.		
Conn.		
RCHIE FRANKLIN . .	Mech.	Draughtsman, Brown & Sharpe Mfg. Co.
., Providence.		
TRUDE MAIE	Sci.	At home.
IE BAILEY		
UECKERT)	Sci.	At home.
Ave., Providence.		
ERT PRENTICE . .	Mech.	Bookkeeper, Maxson & Co., Westerly.
RLES FRANKLIN . .	Mech.	With Silver Spring Bleaching and Dyeing Co., Providence.
IE LOUISE	Sci.	Stenographer.
., Westerly.		
OUIS HERBERT . .	Mech.	In Second Assistant Engineer's Office, the Lake Shore & Michigan Southern Railway Co.
Ohio.		
ALICE	Sci.	Teacher.
VING	Mech.	Designer of Patterns.

* Not heard from this year.

1898.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
ARNOLD, SARAH ESTELLE (MRS. R. O. BROOKS) . . . . . Trenton, New Jersey.	Sci.	At home.
BARBER, GEORGE WASHINGTON . . Shannock.	Agr.	Clerk.
CARGILL, EDNA MARIA . . . . . Abbott Run.	Sci.	Stenographer, 217 Canal St., Providence.
CASE, JOHN PETER . . . . . Cleveland, Ohio.	Agr.	With Brown Hoisting and Machinery Co.
CLARKE, WILLIAM CASE . . . . . Wakefield.	Sci.	Secretary, Sea View Electric Railroad.
CONGDON, HENRY AUGUSTUS . . Kingston.	Mech.	Farmer.
FLAGG, MARTHA REBECCA . . . . Kingston.	Sci.	At home.
HARLEY, WILLIAM FERGUSON . . . 561 Pawtucket Ave., Pawtucket.	Agr.	Salesman, with Messrs. Callender, McAuslan & Troup Co., Providence.
TURNER, HARRIETTE FLORENCE . . Graduate Drexel Institute, 1900. Florence, Mass.	Sci.	Director, Domestic Science Dept., Hill Industrial School.
WILSON, GRACE ELLEN (MRS. WM. F. HARLEY) . . . . . 561 Pawtucket Ave., Pawtucket.	Sci.	At home.

1899.

BOSWORTH, ALFRED WILLSON . . . Kingston.	Sci.	Assistant Chemist, R. I. Agr. Experiment Station.
BROOKS, RALPH ORDWAY . . . . Trenton, New Jersey.	Sci.	State Chemist, Laboratory of Hygiene.
GEORGE, LILLIAN MABELLE . . . . Kingston.	Sci.	Librarian, R. I. C. A. & M. A.
HARVEY, MILDRED WAYNE . . . . Ithaca, New York.	Sci.	Vice-President, Cornell Incubator Mfg. Co.
KENYON, BLYDON ELLERY . . . . Kingston.	Agr.	Assistant in Physics, R. I. C. A. & M. A.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
WLES, CARROLL . . . . . ngston.	Mech.	Draughtsman, Brown & Sharpe Mfg. Co.
OWLES, HARRY . . . . . ston, Mass.	Sci.	Instructor in Mathematics, American School of Correspondence.
D, MERRILL AUGUSTUS . . . ngston.	Mech.	Engineer, R. I. C. A. & M. A.
RISON, CLIFFORD BREWSTER . . 3 Broad St., Providence.	Sci.	Chemist, City Sewerage Dept.
N, WILLIAM FRAZIER . . . henectady, New York.	Mech.	Engineering Dept., General Electric Co.
YNE, EBENEZER . . . . . nn Arbor, Michigan.	Sci.	Student, Medical School of the University of Michigan.
LLIPS, WALTER CLARK . . . h. B., Brown University, 1902. afayette.	Mech.	Graduate Student, Brown University.
YNOLDS, ROBERT SPINK . . . ew Haven, Conn.	Mech.	Draughtsman, Bridge Dept., N. Y., N. H. & H. R. R. Co.
E, MINNIE ELIZABETH . . . . Vickford.	Sci.	Teacher.
RMAN, ABBIE GERTRUDE S. BENJAMIN BARTON) . . . . ingston.	Sci.	At home.
RMAN, GEORGE ALBERT . . . 4 Massachusetts Ave., Boston.	Mech.	Insurance Agent.
MPSON, SALLY RODMAN . . . . akefield.	Sci.	At home.

1900.

HTMAN, HENRY MAXSON . . 5 Cass Ave., Detroit, Mich.	Mech.	Michigan Representative, Buffalo Forge and Blower Co.
SS, CHARLES CLARK . . . . 10 Central Ave., eyenne, Wyoming.	Mech.	With Union Pacific R. R.
RED, JOHN RALEIGH . . . . 5 Westminster St., Providence.	Mech.	Draughtsman, General Fire Extinguisher Co.
N, GERTRUDE SARAH . . . . orthampton, Mass.	Sci.	Library Assistant, Forbes Library.

* Not heard from this year.

NAME AND ADDRESS	COURSE.	OCCUPATION.
FRY, JOHN JOSEPH . . . . . East Greenwich.	Mech.	Principal, Grammar School.
GODDARD, EDITH . . . . . Brockton, Mass.	Sci.	Teacher, High School, Amherst, N. H.
KENYON, AMOS LANGWORTHY . . Kingston.	Agr.	Dairyman, R. I. C. A. & M. A.
MUNRO, ARTHUR EARLE . . . . . Ph. B., Brown University, 1902. Quonochontaug.	Sci.	Student, Boston University Law School, Boston.
SOULE, RALPH NELSON . . . . . East Greenwich.	Sci.	Student, Massachusetts Institute of Technology.
STEERE, ANTHONY ENOCH . . . 271 Chestnut St., Clinton, Mass.	Mech.	Engineering Dept., Metropolitan Water Board.
STILLMAN, LENORA ESTELLE . . . 74 W. 124th St., New York City.	Sci.	Teacher, Manhattan Borough
TUCKER, BERTHA DOUGLASS . . . Swansea Centre, Mass.	Sci.	Dressmaker.
WHEELER, CHARLES NOYES . . . . 3 Main St., Westerly.	Sci.	With Providence Telephone Co
WILSON, JOSEPH ROBERT . . . . Belleville.	Mech.	In Woolen Mills, J. P. Campbell

1901.

BRAYTON, CHARLES ANDREW . . . Fiskeville.	Agr.	Farmer.
BRIGGS, NELLIE ALBERTINE . . . Providence.	Sci.	In office of R. I. Hospital Trust Co.
BURGESS, CHARLES STUART . . . 264 Sayles St., Providence.	Mech.	Draughtsman, Brown & Sharpe Mfg. Co.
CLARNER, LOUIS GEORGE KARL, JR., 76½ Olney St., Providence.	Sci.	Overseer, Chemical Dept., Silver Spring Bleaching and Dye Co.
DAWLEY, EDNA ETHEL . . . . . Kenyon.	Sci.	Teacher.
DENICO, ARTHUR ALBERTUS . . . Narragansett Pier.	Sci.	Electrician, 231 W. 43 St., New York City.
JAMES, RUTH HORTENSE (MRS. HERBERT E. ROUSE) . . . . Shannock.	Sci.	At home.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
SHERMAN, ANNA BROWN . . . . . Kingston.	Sci.	Stenographer, with Harness & Saddlery Co., Washington St., Providence.
SHERMAN, ELIZABETH AGNES . . . Jamaica Plain, Mass.	Sci.	Stenographer, with B. F. Sturtevant Co.
SMITH, HOWARD DEXTER . . . . North Scituate.	Sci.	Student, Brown University.
STEERE, ROENA HOXSIE . . . . . 98 Fifield St., Providence.	Sci.	Stenographer, with Anthony & Cowell Co.
WILBY, JOHN . . . . . Flat River, Missouri.	Sci.	Supply Clerk, Central Lead Co.

1902.

CLARKE, LATHAM . . . . . Providence.	Chem.	Assistant in Chemistry, Brown University.
FERRY, OLIVER NEEDHAM . . . 117 George St., Providence.	Mech.	With Providence Engineering Co.
MAXSON, RALPH NELSON . . . 1233 Chapel St., New Haven, Conn.	Chem.	Graduate Student, Yale.
PITKIN, ROBERT WILLIAM . . . Box 247, Groton, Conn.	Mech.	With Eastern Shipbuilding Co., New London, Conn.

Treasurer's Report.

MELVILLE BULL, *Treasurer, in account with the* RHODE ISLAND C
OF AGRICULTURE AND MECHANIC ARTS.

1902.	DR.	
Jan. 1.	To cash balance on hand	
	Receipts from president of college for students' board, etc	13,
	Cash received from incidentals	
	Cash received from interest	
		$14,

1902.	CR.	
	By salaries	$
	Postage and stationery	
	Freight and express	
	Traveling	
	Labor	6,
	Store	
	Incidentals	2,
	Constructions and repairs	
	Provisions	1,
	Boarding expense	1,
	Balance	
		$14,

THIS IS TO CERTIFY that the undersigned, auditing committee Board of Managers of the Rhode Island College of Agriculture an chanic Arts, have examined the account of Melville Bull, treasur

above, and find the same to be correct, leaving a balance in the said treasurer's hands of seventy-one dollars and thirty-nine cents ($71.39).

J. V. B. WATSON,
THOS. G. MATHEWSON,
Auditors.

MELVILLE BULL, *Treasurer, in account with the* UNITED STATES FUND OF 1862.

1902.	DR.	
	To balance from last year	$2,883 75
	Interest received from State treasurer	2,500 00
		$5,383 75

1902.	CR.	
	By salaries	$1,777 69
	Apparatus	103 85
	Text-Books	671 32
	Stock and material	262 76
	Balance	2,568 13
		$5,383 75

THIS CERTIFIES that we, the undersigned, auditing committee of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, have examined the accounts of Melville Bull, treasurer, of the United States fund of 1862, and find the same correct.

The total receipts were $5,383.75 and the total expenditures were $2,815.62, thus leaving a balance to new account of $2,568.13.

J. V. B. WATSON,
THOS. G. MATHEWSON,
Auditors.

THE RHODE ISLAND STATE AGRICULTURAL EXPERIMENT STATION, *in account with the* UNITED STATES APPROPRIATION.

1902.	DR.		
	To receipts from the treasurer of the United States, as per appropriation for fiscal year ended June 30, 1902, as per act of Congress approved March 2, 1887.....		$15,000 00
1902.	CR.		
	By salaries.....	$6,947 87	
	Labor.....	3,108 13	
	Publications.....	2 50	
	Postage and stationery.....	294 28	
	Freight and express.....	141 97	
	Heat, light and water.....	988 09	
	Chemical supplies.....	13 04	
	Seeds, plants and sundry supplies.....	462 20	
	Fertilizers.....	183 73	
	Feeding stuffs.....	619 06	
	Library.....	518 31	
	Tools, implements and machinery.....	378 30	
	Furniture and fixtures.....	212 35	
	Scientific apparatus.....	175 39	
	Traveling expenses.....	177 36	
	Contingent expenses.....	29 40	
	Buildings and repairs.....	748 02	
			$15,000 00

WE, the undersigned, duly appointed auditors of the corporation, do hereby certify that we have examined the books and accounts of the Rhode Island State Agricultural Experiment Station for the fiscal year ended June 30, 1902; that we have found the same well kept and classified as above, and that the receipts for the year from the treasurer of the United States are shown to have been $15,000, and the corresponding disbursements $15,000, for all of which proper vouchers are on file, and have been by us examined and found correct, thus leaving no balance.

And we further certify that the expenditures have been solely for the purposes set forth in the act of Congress approved March 2, 1887.

J. V. B. WATSON,
C. H. COGGESHALL,
Auditors.

MELVILLE BULL, *Treasurer, in account with the* RHODE ISLAND STATE AGRICULTURAL EXPERIMENT STATION.

1902.	DR.	
	To balance from last year	$224 26
	Station receipts	1,052 01
	Interest	54 53
		$1,330 80

1902.	CR.	
	By postage and stationery	$10 60
	Heat, light and water	5 70
	Buildings and repairs	168 71
	Balance	1,145 79
		$1,330 80

THIS CERTIFIES that we, the undersigned, auditing committee of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, have examined the accounts of Melville Bull, treasurer of the Rhode Island State Agricultural Experiment Station, and find the same correct.

The total receipts were $1,330.80 and the total expenditures were $185.01, thus leaving a balance to new account of $1,145.79.

J. V. B. WATSON,
C. H. COGGESHALL,
Auditors.

Synopsis of the Report of the Treasurer of the Rhode Island College of Agriculture and Mechanic Arts to the Secretary of Agriculture and the Secretary of the Interior, of amount received under Act of Congress of August 30, 1890, in aid of Colleges of Agriculture and the Mechanic Arts, and of the disbursements thereof, to and including June 30, 1902:

Balance on hand July 1, 1901	$ 60
Installment for 1901–2, received July 12, 1901	25,000 00
	$25,000 60

DISBURSEMENTS THEREOF FOR AND DURING THE YEAR ENDING JUNE 30, 1902.

SCHEDULE A.—Disbursements for Instruction in Agriculture and for facilities for such instruction	$3,398 92	
SCHEDULE B.—Disbursements for Instruction in the Mechanic Arts and for facilities for such instruction	5,894 77	
SCHEDULE C.—Disbursements for Instruction in the English Language and for facilities for such instruction	3,180 02	
SCHEDULE D.—Disbursements for Instruction in Mathematical Science and for facilities for such instruction	2,767 49	
SCHEDULE E.—Disbursements for Instruction in Natural Science and for facilities for such instruction	9,592 38	
SCHEDULE F.—Disbursements for Instruction in Economic Science and for facilities for such instruction	166 67	
Total expended during the year		$25,000 25
Balance remaining unexpended July 1, 1902		35
		$25,000 60

I HEREBY CERTIFY that the above account is correct and true, and, together with the schedules hereunto attached, truly represents the details of expenditures for the period and by the institution named; and that said expenditures were applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their application in the industries of life, and to the facilities for such instruction.

MELVILLE BULL, *Treasurer.*

Report of the Board of Managers, Rhode Island College of Agriculture and Mechanic Arts

KINGSTON, R. I.

1904

Sixteenth Annual Report

OF THE

Corporation, Board of Managers

OF THE

Rhode Island College of Agriculture and Mechanic Arts,

MADE TO THE

General Assembly at its January Session, 1904.

1903 Part I.

Part II — Experiment Station Report — is printed under separate cover.

Part III — Catalogue — is printed under separate cover.

Providence, R. I.
E. L. Freeman & Sons, Printers to the State.
1904.

Rhode Island College of Agriculture and Mechanic Arts.

Corporation.

HON. MELVILLE BULL.....NEWPORT COUNTY.
HON. C. H. COGGESHALL.....BRISTOL COUNTY.
HON. CHARLES DEAN KIMBALL.....PROVIDENCE COUNTY.
HON. THOMAS G. MATHEWSON.....KENT COUNTY.
HON. J. V. B. WATSON.....WASHINGTON COUNTY.

Officers of the Corporation.

HON. CHAS. DEAN KIMBALL, President....P. O., PROVIDENCE, R. I.
HON. C. H. COGGESHALL, Clerk.....P. O., BRISTOL, R. I.
HON. MELVILLE BULL, Treasurer.....P. O., NEWPORT, R. I.

REPORT.

To His Excellency Lucius F. C. Garvin, Governor, and the Honorable General Assembly of the State of Rhode Island and Providence Plantations, at its January Session, 1904:

I have the honor to submit herewith the Sixteenth Annual Report of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, as required by law.

CHARLES DEAN KIMBALL,

President of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts.

COLLEGE OF AGRICULTURE AND MECHA...

In order to place before your Excellency and the Honorable General Assembly the present condition of affairs at the college and to transmit such recommendations as have been made by your Board and by the president of the college, we include as Part I of this report the following: A statement of appropriations to be asked of the General Assembly—this statement embodying resolution of the Board of Managers; the annual report of the treasurer of the Board; the report of the president of the college for the year; and an abstract of an inventory of college property. Part II will contain the usual report of the experiment station. Part III will be a statement of the courses of study and other details.

STATEMENT OF APPROPRIATIONS TO BE ASKED OF THE GENERAL ASSEMBLY BY RESOLUTION OF THE BOARD OF MANAGERS OF THE RHODE ISLAND COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

The Board of Managers at its regular meeting, December 2 1903, voted to ask the next legislature for the following appropri ations:

I. An increase of the annual appropriation for current expense from $15,000.00 to $19,000.00; $2,000.00 of the increase to be use for student labor and $2,000.00 for demonstration and extensio work.

II. Special appropriations for building, repairs, and other pe manent improvements:

1. For a greenhouse, to include sufficient room for both e perimental and educational purposes, and suitable workrooms connection, $15,000.00.

2. For certain additions and improvements in connection w the dairy barn, $500.00.

3. For additional fire protection, $500.00.

...neral repairs, $2,000.00.

...IAN KIMBALL,

TREASURER'S REPORT.

MELVILLE BULL, *Treasurer, in account with the* RHODE ISLAND COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

1903.	DR.	
Jan. 1.	To cash balance on hand	$71 39
	Receipts from president of college for students' board, etc	15,092 22
	Cash received from interest	75 01
		$15,238 62

1903.	CR.	
By	salaries	$349 57
	Postage, stationery, and printing	277 77
	Freight and express	337 67
	Traveling	227 70
	Labor	5,952 94
	Store	864 75
	Incidentals	1,959 85
	Construction and repairs	2,331 83
	Provisions	1,622 31
	Boarding expense	1,312 49
	Balance	1 74
		$15,238 62

This is to certify that the undersigned, auditing committee of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, have examined the account of Melville Bull, treasurer, as above, and find the same to be correct, leaving a balance in the said treasurer's hands of one dollar and seventy-four cents ($1.74).

THOMAS G. MATHEWSON,
J. V. B. WATSON,
Auditors.

MELVILLE BULL, *Treasurer, in account with the* UNITED STATES FUND OF 186[illegible]

1903.	DR.	
	To balance from last year	$2,568 1
Dec. 26.	Interest received from state treasurer	2,500 0
		$5,068 1

1903.	CR.	
By	salaries	$1,076 0
	Text-books	909 5
	Stock and material	106 7
	Apparatus	69 9
	Tools and machinery	21 4
	Balance	2,884 4
		$5,068 1

This certifies that the undersigned, auditing committee of the Rhode Isla[illegible] College of Agriculture and Mechanic Arts, have examined the accounts of M[illegible]ville Bull, treasurer, of the United States Fund of 1862, and find the same c[illegible]rect.

The total receipts were $5,068.13, and the total expenditures were $2,183.[illegible] thus leaving a balance to new account of $2,884.48.

THOMAS G. MATHEWSON,
J. V. B. WATSON,
Auditors.

THE RHODE ISLAND STATE AGRICULTURAL EXPERIMENT STATION, *in acc[illegible] with the* UNITED STATES APPROPRIATION.

1903.	DR.	
To receipts from the treasurer of the United States as per appropriation for fiscal year ended June 30, 1903, as per act of Congress approved March 2, 1887		$15,00[illegible]

1903.	CR.	
By	salaries	$7,79[illegible]
	Labor	2,33[illegible]
	Postage and stationery	218 [illegible]
	Freight and express	142 [illegible]

1903.	Cr.	
	Heat, light, and water	785 11
	Chemical supplies	53 72
	Seeds, plants, and sundry supplies	834 12
	Fertilizers	229 17
	Feeding.stuffs	570 92
	Library	274 78
	Tools, implements, and machinery	306 43
	Furniture and fixtures	628 40
	Scientific apparatus	342 23
	Traveling expenses	203 80
	Contingent expenses	16 00
	Building and repairs	264 51
		$15,000 00

We, the undersigned, duly appointed auditors of the corporation, do hereby certify that we have examined the books and accounts of the Rhode Island State Agricultural Experiment Station for the fiscal year ended June 30, 1903; that we have found the same well kept and classified as above, and that the receipts for the year from the treasurer of the United States are shown to have been $15,000, and the corresponding disbursements $15,000, for all of which proper vouchers are on file, and have been by us examined and found correct, thus leaving no balance.

And we further certify that the expenditures have been solely for the purposes set forth in the act of Congress approved March 2, 1887.

CHARLES DEAN KIMBALL,
C. H. COGGESHALL,

Auditors.

Melville Bull, *Treasurer, in account with the* Rhode Island State Agricultural Experiment Station.

1903.	Dr.	
To	balance from last year	$1,145 79
	Station receipts	1,227 92
	Interest	105 71
		$2,479 42

1903.	Cr.	
By publications	$17 38	
Heat, light, and water	154 94	
Furniture and fixtures	131 07	
Traveling	13 81	
Contingent expenses	4 50	
Balance	2,157 72	
	$2,479 42	

This certifies that we, the undersigned, auditing committee of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, have examined the accounts of Melville Bull, treasurer of the Rhode Island State Agricultural Experiment Station, and find the same correct.

The total receipts were $2,479.42, and the total expenditures were $321.70, thus leaving a balance to new account of $2,157.72.

CHARLES DEAN KIMBALL,
C. H. COGGESHALL,
Auditors.

Synopsis of the Report of the Treasurer of the Rhode Island College of Agriculture and Mechanic Arts to the Secretary of Agriculture and the Secretary of the Interior, of amount received under Act of Congress, of August 30, 1890, *in aid of Colleges of Agriculture and the Mechanic Arts, and of the disbursements thereof, to and including June* 30, 1903.

Balance on hand, July 1, 1902	$
Installment for 1902–3, received July 8, 1902	25,000
	$25,000

Disbursements Thereof for and During the Year Ending June 30, 1903.

Schedule A.—Disbursements for Instruction in Agriculture and for facilities for such instruction	$4,268 27
Schedule B.—Disbursements for Instruction in the Mechanic Arts and for facilities for such instruction	8,015 04

SCHEDULE C.—Disbursements for Instruction in the English Language and for facilities for such instruction	$3,012 85	
SCHEDULE D.—Disbursements for Instruction in Mathematical Science and for facilities for such instruction	2,305 62	
SCHEDULE E.—Disbursements for Instruction in Natural Science and for facilities for such instruction	6,278 48	
SCHEDULE F.—Disbursements for Instruction in Economic Science and for facilities for such instruction	1,120 09	
Total expended during the year		$25,000 35

I hereby certify that the above account is correct and true, and, together with the schedules hereunto attached, truly represents the details of expenditures for the period and by the institution named; and that said expenditures were applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their application in the industries of life, and to the facilities for such instruction.

MELVILLE BULL, *Treasurer.*

REPORT OF THE PRESIDENT OF THE COLLEGE.

To the Honorable Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts.

GENTLEMEN:—I herewith submit the following report of our college work for the year ending December 31, 1903.

I wish, in the first place, to acknowledge as a personal matter and in the most cordial terms the value of the services of Dr. H. J. Wheeler as acting president. During the first three months of the year, and prior to my arrival here April first, Dr. Wheeler and I were in constant correspondence relative to the work and policy of the college. I found myself in entire accord with the plans which he had developed during the autumn, and can give my most hearty approval to the results which have accrued from his services. It was due in no small measure to his earnestness and foresight that we secured the legislative apppropriation of three thousand dollars for student labor and demonstration work. I cannot too cordially commend this move. During this time, also, the new agricultural high school, which will be mentioned more fully later, was inaugurated. Dr. Wheeler also set on foot comprehensive plans for advertising the college, securing the names of many prospective students and otherwise paving the way for effective personal work in this line. Dr. Wheeler's earnestness, his devotion to the best interests of the college, his intelligent planning, and his loyalty to the purpose of the incoming administration dominated his incumbency of the office of acting president and made the work of the president elect much easier.

CHANGES IN COURSES.

During the year, several changes have been made in the courses of study, principally in the preparatory school. At the opening of the present college year, there was offered an agricultural high school course consisting of two years of study. It is designed, in this course, that the student shall devote about half of his time to ordinary high-school subjects—mathematics, English, and elementary science—and about half of his time to class and handicraft work in agriculture itself. The course is planned to accommodate those young people who may desire to secure a fair start in agricultural education, but who are not likely to take time for full college work.

The faculty also adopted an industrial high-school course based upon the same general principle as the course just mentioned, offering handicraft work along the following four lines: carpentry, machine shop, mechanical draughting, and steam engineering. A large amount of practice is given in the college shops and draughting room. The course is planned to meet the needs of those young men who cannot take college work, but who wish to avail themselves for a time of school advantages. It is expected that students taking this course can acquire the principles and practice of a trade and at the end of the period take places in the shop as journeymen.

The faculty has felt for some time that a number of the candidates for the general preparatory course of two years were not fitted to carry on the work and yet, in some cases, could not secure adequate advantages near home. The faculty therefore voted to offer for the present college year a special preparatory year. It is thought that this plan will especially meet the needs of students who come from the rural schools. It is considered as a somewhat temporary arrangement to meet existing conditions.

The faculty also voted to establish a course in farm mechanics which will become a part of our system of special winter courses. It will be offered for the first time during the winter term, which begins

January 6 next. It is designed to assist young men who have not time for extensive work in the college to reduce the time for their apprenticeship for some of the trades, and also to be of service to young men who wish to settle in the smaller cities and larger villages as skilled mechanics.

POLICY OF THE PREPARATORY SCHOOL.

The wisdom of our continuing to offer the work of the preparatory school at this college is occasionally questioned. Doubtless the faculty would much prefer that all our work should be of college grade. But, after considering the situation with some care, I am convinced that the policy of former administrations in continuing the preparatory work is justified. It seems apparent that the college has not had the close connection with the high schools of the state that should exist. Consequently, a very small proportion of the graduates of Rhode Island high schools has entered this college. During the last collegiate year, two-thirds of the students in the college proper received their preparatory training in our own preparatory school. Moreover, it seems to be an undisputed fact that in large portions of Rhode Island high-school facilities are somewhat meagre. There are localities where it is difficult indeed for boys and girls of the neighborhood to secure proper high-school education. Many of these come to us for their preparatory work. It is to be hoped that the time may come when this college can devote all its energies to work of a purely college grade, but until the conditions described are distinctly improved, it would seem wise to continue the preparatory school.

There is one feature of the preparatory school brought into prominence during the current year that may possibly be regarded as a permanent phase of our plan. I refer to the work offered in the agricultural and industrial high schools. These courses, while of a high-school grade from an academic point of view, are so specifically industrial and vocational in their purpose that I am inclined to think they are proper courses for us to maintain so long as they seem

to be serving a real need and so long as other institutions are not meeting this particular demand.

CHANGES IN THE FACULTY.

Several changes in the teaching force have taken place during the year. Dr. A. C. Scott, professor of physics and electrical engineering, accepted a position as professor of electrical engineering in the University of Texas. Dr. Scott was a graduate of this college in the class of 1895, and had secured his subsequent thorough training in Harvard, Cornell, and Wisconsin universities. It was due to his efforts that the course in electrical engineering was established and brought to its present standard. It was with keen regret that we were compelled to lose his services. The position made vacant by his resignation has been filled by the appointment of Professor Gilbert Tolman, A. M., a graduate of the University of Maine, who has had some years' experience in teaching and who came to us directly from Columbia University, where he had been doing both teaching and graduate work.

The college community was shocked and grieved to learn, in July, of the sudden death of Captain Solomon E. Sparrow, who for two years and a half had been military commandant at this college, detailed by the U. S. War Department. Captain Sparrow's gentlemanly deportment had made him many friends among the faculty. The War Department refused to make another detail to take Captain Sparrow's place, because of the small number of cadets reported as drilling last year. Arrangements were therefore made with Dr. Lewis Balch, of Kingston, late brigade surgeon U. S. Volunteers, to act as instructor in military science and tactics.

Miss Sarah W. Sanderson resigned at the end of the college year as instructor in English. She had filled this position for three years in the most satisfactory manner. Her genuine teaching talent and her charming manner won the loyalty and esteem of all her students. The position thus made vacant was filled by the appointment of Miss Josephine O. Bostwick, A. B., a graduate of Acadia College, New Brunswick.

Mr. Blydon E. Kenyon, assistant in physics, resigned at the end of the college year, to go into practical work. This position was filled by the appointment of Mr. Walter A. Mitchell, A. B., a graduate of Trinity College, Hartford, Conn. Mr. Merrill A. Ladd, engineer in the department of electrical engineering, also resigned, and Mr. Stephen Quinn was made engineer. Both Mr. Kenyon and Mr. Ladd are graduates of this college, and their promotion to better positions than were available here is well deserved.

For the demonstration work, Mr. W. D. Hurd, a graduate of the Michigan Agricultural College, and a man who had had considerable experience in similar lines, was secured for the three summer months. At the end of that time Mr. Hurd had a very flattering offer from the University of Maine, which he accepted. He had proved himself extremely efficient in the difficult task assigned him. In September, this work was taken up by Mr. J. Weston Hutchins, a Michigan practical farmer, who has long been identified with agricultural educational work, particularly with farmers' institutes, and who is also editor of the grange department of the Michigan Farmer. The work of these two men will be mentioned more fully on a later page.

The title of Professor Fred W. Card has been made professor of agriculture, and, by common consent, the division of responsibility and authority between the departments of agriculture and of animal industry has been more clearly outlined.

ATTENDANCE.

The attendance at the college, for the college year ending June, 1903, was as follows:

College	39
Preparatory school	39
Specials	7
Special winter courses:	
Farm practice, 4; Poultry keeping, 18	22
Total	107

I am glad to report increased attendance at the opening of the present college year. The enrollment at this date is 112, divided as follows:

College	56
General preparatory course	46
Industrial high school	3
Agricultural high school	1
Specials	2
Special winter course—farm practice	4
Total	112

To this will be added for the college year the students in poultry keeping and in farm mechanics.

I submit herewith a statement showing the enrollment of so-called "regular" students at this date in each of the last five years, excluding those attending the special winter courses:

For 1899	90	students.
" 1900	82	"
" 1901	86	"
" 1902	73	"
" 1903	106	"

It will be observed that the attendance of the present fall term is about forty-five per cent. greater than a year ago and one-sixth greater than the largest previous attendance in the history of the college in 1899. This is very gratifying, and it is hoped that it indicates the beginning of a substantial and permanent increase. The Freshman class in the college consists of 22 members, about half of them coming from various Rhode Island high schools. Of the total enrollment, 57 consist of day students, who do not room or board upon the college grounds. A few of the day students, however, live in the village and are really a part of the college population. The men's dormitory, which accommodates comfortably about 45, is

practically full. In mentioning our dormitory accommodations, I wish to suggest that, if the attendance of young women is to be encouraged at this college, an adequate dormitory for women must be provided in the near future. The old farmhouse, "Watson House," is at present used for this purpose. But it accommodates only six or eight and is entirely inadequate even for these, needing constant repair and being in no way suitable for the purpose.

STUDENT LABOR.

By an understanding with your Board, it was determined last spring to apply about two-thirds of the special appropriation made by the legislature of 1903 to student labor and about one-third to demonstration work. The expenditure of this fund has been as follows:

Appropriation from legislature.....		$3,000 00
Expended for student labor.....	$1,815 93	
Expended for demonstration.....	771 56	
		$2,587 49

This balance of $412.51 is considered sufficient to carry the demonstration work until April first, and to allow also the expenditure of about $135.00 more for student labor.

With respect to student labor, it may be said that the policy has been to give worthy and competent students such work as can be economically performed by them. It has not been the aim to create work for them, although certain services which formerly had been performed by hired men have been given over to students. Still no serious departure has been made from the previous policy of the college in this respect. There has been, however, perhaps an unusual demand for work on the part of new students. It ought to be considered, in this connection, that this student labor fund is neither a philanthropy nor a bonus. It is utilized for services that have to be done by somebody, and it is thought that, under proper arrangements, they can be performed by students, who are thus given the

opportunity which they desire to pay a portion of their expenses. The amount of work which can be given to students is limited; and, if the attendance increases, the rules governing student labor must gradually be changed. Probably it will be necessary to confine the work more closely to those who are planning to graduate. Even now, it is designed to give work only to those who need it, who do it well, and who, otherwise, both in the classroom and in deportment, conduct themselves properly. It may also be of interest to state that, during the summer vacation, five or six students remained during the entire time, working on the farm and in the repairs of buildings. Of the total amount expended from the special fund, $476.05, or about one-fourth, was expended for student labor on the farms, in the barns, and in the horticultural department. During the autumn the preliminary work of clearing from rocks a field of 7.78 acres was well begun, partly by student labor. During the fall term about 40 students performed paid service to a greater or less extent.

DEMONSTRATION AND EXTENSION WORK.

Mr. Hurd's work during the three months of the summer was entirely in giving demonstrations of spraying for insects and diseases, examining orchards to discover the prevalence of the San José scale, etc., the testing of soils, and in general giving such practical information as would be of most value to the farmers of the state. Wherever possible, his visit to a farm was made the occasion of a gathering of the neighbors. The records show that Mr. Hurd made 70 visits during the summer. These visits were in different parts of the state and reached a large number of people. It is designed to repeat this demonstration work during the early spring months, when spraying for the San José scale and for other pests can be carried on. The plan is to show how the pests may be recognized, how they should be treated, and how to manipulate the apparatus.

Mr. Hutchins's work thus far during the year has been principally along other lines of extension work. He has assisted Professor

Card with the Nature-Guard work. The Nature Guard endeavors to interest the pupils of the schools in nature study and agriculture, and is meeting with a most cordial reception from the teachers and educational workers generally. During the fall, the Nature Guards collected a great many weed seeds which have been classified at the college, and cases for the preservation of which are being obtained by the schools. The cases may be kept in the schoolroom for reference and for comparison by farmers, with the hope that the spread of injurious weeds can thus be retarded. Other plans for enlarging this nature work in the schools of the state are now under way. I wish to call your attention to the extreme value of this work, both in interesting the pupils in the fundamentals of agriculture and in nature, and in arousing their interest in this college and its work. Mr. Hutchins has also assisted very materially in the farmers' institutes which have been held under the auspices of the State Board of Agriculture, and has visited individual farmers and farmers' gatherings. During the next two months, some member of the college force will give a lecture on a practical farm topic before every grange in the state desiring it. This also is a part of our extension work, and is under Mr. Hutchins's general direction.

I wish to give my most cordial approval to this extension and demonstration work. There can be no question about the absolute necessity of the college keeping in the closest possible touch with the farmers of the state, and it can be done in no way so fully as by the personal visits of members of the college. That alone would be sufficient excuse for continuing this work, but it is really a minor argument for extension study. There are three distinct lines which a college of agriculture must follow. First, research. This work is done now by the experiment station. Second, teaching of students. This is done in our regular college course in agriculture, in the agricultural high school, and in the special winter courses in farm practice and poultry keeping. Third, extension work. This carries to the farmers in their homes and in their associations, the best knowledge that the college experimenter and teacher as

well as the expert farmer can convey. I wish to suggest that this is a permanent work that will always be in demand. It is not enough to send printed matter to the farmers. The personal contact of college professor and experimenter with the practical farmer is of advantage to both, and is the best means of imparting practical information. This extension work should be regarded as a primary feature, and, in my judgment, should be enlarged and perfected in such a manner that the college, through this phase of its work, shall be enabled to touch personally and somewhat intimately practically all the farmers of the state. I cannot urge too strongly the maintenance and enlargement of this work. I regard it as absolutely essential to the largest success of our agricultural work at the college, and of first importance to the progress of agriculture in the state generally.

STUDENT ACTIVITIES.

Last winter, through the liberality and public spirit of the faculty, the drill room in Lippitt Hall was fitted up with some gymnasium apparatus, and a room in Davis Hall was also prepared as a social room. The gymnasium is being utilized more or less by the students to their advantage, although the equipment is still incomplete. The social room has been neatly furnished and provided with periodicals, and plans are already under way for connecting with it a game room and a small library. This room is constantly open and accessible to all men students, and it has been much appreciated by them. The Young Men's Christian Association has been revived and is making plans for greatly enlarged work during the coming winter. A student council has been organized under the advice of the faculty, and it is hoped that this council will assist in directing student activities and will be, in every way, representative of student sentiment and a means of communication between students and faculty. Athletics have been encouraged by the faculty to a moderate extent, because of a feeling that, under proper control

they are of value to the students participating and perhaps of even more value in arousing and cementing a proper college spirit.

THURSDAY LECTURES.

During the fall term a scheme of Thursday lectures has been inaugurated; the class periods of the day being slightly shortened and a forty-minute period just before the noon hour being devoted to the lecture. We have been fortunate in securing the presence of distinguished clergymen and business men. Members of our faculty have also participated. The plan has been well received by the students.

ALUMNI REUNION.

One of the pleasant events of the year was a dinner given in the city of Providence by the alumni of the college, May 29. A large number of graduates were present and expressed thorough loyalty to the college and a desire to help it to an enlarged career of usefulness. No college can permanently succeed unless its sons and daughters love it and will rally to its needs. I am sure that this college can count on the active support of the men and women it has trained for better work and higher success.

COMMENCEMENT.

Commencement exercises were held during a season of somewhat inclement weather, which reduced the attendance. The baccalaureate address was given by the president of the college, on June 14. The commencement address, on June 16, was delivered by Dr. W. H. Jordan, Director of State Experiment Station. Geneva, New York, on the subject, "The Education of the Rural People." It was a masterly exposition, and was thoroughly well received. Remarks were also made by Governor Garvin. The degree of Bachelor of Science was conferred on six candidates.

LIGHTING OF JAIL AND COURT HOUSE.

During the year arrangements have been made by which the college furnishes power for the electric lights for the Washington County jail and court house; this service to be rendered at actual cost to the college.

BOARD OF AGRICULTURE.

One of the most satisfactory events of the year has been the holding of two joint meetings of our Board of Managers and the State Board of Agriculture, one in Providence and one at the college. There is every reason why these two boards should work together with harmony of purpose and of feeling in order that the agricultural and industrial interests of the state may be advanced.

EXHIBIT AT ST. LOUIS.

It has been thought best that the college should not exhibit largely at the St. Louis Exposition in connection with the college and station exhibits. Our present plan includes a small exhibit, showing as far as possible the work which the college and station are now doing for the benefit of Rhode Island agriculture; this exhibit is to be placed in connection with the general agricultural exhibit from this state. The college and station are also assisting the Board of Agriculture and the Board of Fair Commissioners in preparing an adequate exhibit of the agricultural interests of the state.

ADVERTISING.

Newspaper advertising for the year has been largely omitted. Names of prospective students have been secured so far as possible, and personal correspondence has been carried on with them. This plan, while more expensive, is I believe much more effective, as I trust results will finally show. It is extremely desirable that the people of the state should visit the college and learn at first hand of

its work and the facilities offered. Large excursions are out of the question, because of our inability to provide transportation for the people from the railroad station. But it is hoped that a large number of small excursions can be held during the summer season, and I am satisfied that great good will come out of this system. During the past year we have had pleasant visits from the Rhode Island Press Club, the Rhode Island Horticultural Society, the Board of Agriculture, thirty-eight members of Cumberland Grange, and the St. Louis Fair Commissioners. I am satisfied that, as soon as the people of this state understand the work of this college and the opportunities it offers, they will at once concede its educational position in the state and will patronize it more largely.

A part of our advertising plan also comprises visits by the faculty to many parts of the state. Besides our extension work, and besides frequent addresses by the president of the college, various faculty members have attended meetings of the grange and of various agricultural organizations, and have given addresses at the same. During the spring term a committee of the faculty visited 37 rural schools in Washington County, getting acquainted with the teachers and pupils and making known the college. A similar committee also visited practically all of the high schools of the state on the same errand. I am convinced that these efforts are valuable in bringing us into touch with the school interests of the state and in giving us a closer intimacy with our sources of supply of new students.

EXPERIMENT STATION.

The by-laws of the experiment station have been amended so as to conform to the action of your Board about a year ago in placing the station on a somewhat more independent administrative basis. Although still regarded as a department of the college, the director reports directly to your Board rather than through the medium of the president of the college, the latter remaining, however, as a member of the station council. Under present

conditions, this plan is likely to work harmoniously. The stati report will be made to your Board as usual. I desire to express n appreciation of the work of Dr. Wheeler as director of the station well as of the work of the staff, not merely because the station wo is efficient in itself, but because it is contributing so fully to the rep tation of the college and is giving the farmers of the state a ne reason for faith in agricultural education.

SOIL SURVEY.

Through the request of Dr. Wheeler and myself, the Bureau Soil Survey of the U. S. Department of Agriculture has very kind agreed to make a soil survey of the entire state in the near futur It is hoped that this soil survey will be of value in determining tl productive areas of the state, in indicating what portions should l put into forests, in ascertaining the best orchard regions, etc., th advertising to the farmers of Rhode Island, and indeed to the farme of other states, the possibilities of successful agriculture in this stat

FINANCES.

I judge, from such study of the finances of the institution as have been able to make since my arrival here, that the prese income is barely adequate to maintain the present plant. It is, course, perfectly understood that the income from the first Morr Fund of 1862, amounting to $2,500.00 annually, and that from tl second Morrill Fund of 1890, amounting to $25,000.00 annually, ca be used only for specific purposes. These funds pay salaries, exce in certain prohibited cases, and a large proportion of the new equi ment necessary for proper instruction. The expense of all ne buildings, repairs, fuel, the entire cost of the maintenance of the pla in every respect, must according to Federal law be borne by the stat

The present appropriation of $15,000.00 a year made by the sta legislature is hardly sufficient to meet this demand. So far as I am ab to discover, it is not possible materially to reduce the cost per capit

of student instruction; nevertheless, the increased attendance we hope for and should have must necessarily increase somewhat the total demands upon our finances. Again, the college is lacking in certain equipment, such as, for instance, the greenhouse; but, if we have the greenhouse, we must remember that this involves a new burden of maintenance which must come from our current state appropriation. I think we should face these things squarely, and should very frankly state them to the legislature and to the people. It is our policy to be economical and businesslike, and the public should be acquainted with our methods and with our needs. I am convinced that when the public does know the exact situation, it will be perfectly willing to support the institution adequately. Incidentally, I desire to state that the law requiring us to transport students from and to the Kingston station, free of cost to the students, involves the college in considerable expense, and I would recommend the consideration of the question whether it would not be more economical to contract with private parties for this transportation than to carry it on under the auspices of the college.

PRESENT NEEDS.

I desire to repeat here the substance of my oral recommendations already made before your Board. By your vote of December 3, the legislature will be asked for appropriations aggregating slightly less than the sum I recommended. With your vote I am in heartiest accord. But I retain here my original recommendation, as it gives me the opportunity better to state our financial needs as I see them.

In the first place I would recommend that the legislature be asked to increase our current annual appropriation from $15,000.00 to $20,000.00 per year, with the distinct understanding that, of the additional $5,000.00 thus provided, we shall use $3,000.00 for student labor and $2,000.00 for extension and demonstration work. It will be observed that this plan will give us the same current income for general purposes that we have at present. It will give us $1,000.00 more for student labor than we had last year from the special

appropriation, and instead of $1,000.00 it will give us $2,000.00 for the extension and demonstration work; thus virtually increasing our current income for all these purposes only $2,000.00 beyond the present year.

In this connection, I desire to state that $5,000.00 was the sum asked of the legislature last year for student labor and demonstration work. Moreover, during the current year we have paid out for student labor as follows:

From current fund (January-June).....	$1,309 01
From special fund (July-December).....	1,815 93
	$3,124 94

It will be seen that at this rate the amount recommended ($3,000.00) is none too great for present needs, especially when we recall that we are utilizing student labor wherever feasible and that we have the largest attendance in the history of the college. There is appended herewith a statement of the amount expended for student labor during the past few years:

1898.....	$3,900 56
1899.....	2,924 13
1900.....	1,708 24
1901.....	1,855 23
1902.....	2,054 12
1903.....	3,124 94

I desire to make a strong plea for the appropriation of $2,000.00 for demonstration work. With the present funds, we can provide for the work only a portion of the time. With $2,000.00, I am satisfied that we can develop a very satisfactory department of college extension, and one that will commend itself very fully to the farmers and to citizens generally.

I also wish to call your attention to the extreme desirability of our having funds available for student labor and extension work as

rent annual appropriations. Otherwise, it is extremely difficult plan this work satisfactorily. And, indeed, it is next to impossi- properly to adjust both these lines of work unless we are assured their permanent support.

: would further call your attention to the need of a greenhouse. is undoubtedly the desire of the people of the state that agri- tural instruction at this college shall be emphasized. But, in w of the great importance of the horticultural interests of Rhode and, it is manifestly impossible for us to give adequate instruc- n unless we have a suitable greenhouse. We have prepared ns for such a structure, and estimates on these plans give the cost $20,000.00. I am satisfied, however, that we can construct a isfactory building for $15,000.00. Of course, a greenhouse can built for a less sum than this even; but a greenhouse of this sort ould be well built, modern, and suited not only for educational d instructional purposes but also for experimental work. It ould be accompanied by a workroom that is in keeping with our d college buildings. There can be no excuse for unnecessary ense in such a structure, but it is a part of wisdom that it should not only well built but attractive as well.

There are certain improvements at the dairy barn, including a able milkroom, platform scales, etc., for which I would recom- nd an expenditure of $500.00; also the building of a manure pit shed which will enable the better preservation of the liquid man- and the handling of it; also the deepening of the well on the plain, l the installation of a complete fire-alarm system, these being im- ative for proper protection from fire.

would also recommend that the legislature be asked to appro- ate in addition to the above sum not less than $2,000.00 for special airs. In connection with this item, it is urged that it be made policy to ask the legislature to distinguish between our current enditure, which can in a general way be previously estimated l which is certain to come up annually, and our special appropri- ons for certain specific purposes. I would include, under these

specific purposes, the annual repair fund. While it is true that we can calculate on a certain amount of repairs each year, we cannot tell just how much they will be nor what contingencies may arise. It is simply a business proposition that these repairs be made in order that the plant shall be kept in proper shape. It would seem therefore, only fair that the legislature should regard repairs, as it does new buildings, properly subject to special appropriations upon recommendation of your Board.

HIGHWAY ENGINEERING.

I desire to endorse the idea contained in the resolution adopted by your Board, May 18, 1903, "Voted, that the college shall offer a course in highway engineering provided proper financial arrangements can be made." I am satisfied that the time is opportune for the installing of such a course. It is a course wholly appropriate for this college to undertake, connected as the subject is with both engineering and farm progress. With very slight extra expenditure for teaching, the instruction work can be arranged for. It is necessary, however, that the students in this course should have some opportunity for practical road work. I would recommend, as the most satisfactory, the plan of asking the legislature to appropriate a sufficient sum to enable us to buy road machinery for use on the college grounds. But as I understand that you do not deem this wise at present, I recommend that a committee of your Board be appointed to act with Dr. Hewes and myself for the purpose of negotiating with the authorities of an adjacent town, or of the state, or of the Federal government, for the limited use of road machinery either on our own grounds or on some neighboring highway. I would recommend that the legislature be asked to appropriate $500.00 for the purpose of meeting the expenses of the course.

Accompanying this report is an inventory of all property in the charge of the college, made by order of your Board. It has been made with great care, and is a conservative statement of present

valuations. The details have been card catalogued, and are on file in the various departments as a permanent record.

All of which is respectfully submitted.

KENYON L. BUTTERFIELD,
President.

December 31, 1903.

Summary of Inventory, December 31, 1903.

Farm and campus		$14,855 0(
Buildings and heating of same:		
Watson House, purchased 1889	$995 00	
Taft Laboratory, built 1890	22,025 00	
Boarding Hall, built 1890	9,365 00	
Laundry, built 1901	1,938 50	
Ladd Laboratory, built 1890	9,330 00	
Davis Hall—dormitory, built 1895	46,714 00	
Botanical Laboratory, built 1895	1,050 00	
Chemical Laboratory, built 1895	2,330 00	
Lippitt Hall, built 1897	37,306 00	
Greenhouse, built 1890	140 00	
Hot-bed and cold frames, built 1903	155 00	
Poultry buildings	531 00	
Carpenter shop, built 1895	595 00	
Ice house, built 1894	1,180 00	
Powder house, built 1892	48 00	
Forge shop, built 1892	350 00	
Horse barn, built 1890–1901	8,380 00	
Dairy barn, built 1898	6,635 00	
Barn on plain, built 1743–1902	2,300 00	
		151,367
Lighting, water, and sewer systems:		
Lighting	$1,899 59	
Water	8,135 00	
Fire apparatus	1,082 00	
Gas mains	256 50	
Sewer	1,816 40	
		13,
Equipment, apparatus, etc., by departments:		
Agriculture:		
Crops	$1,514 00	
Tools and machinery	1,895 93	
Wagons, harnesses, etc	1,119 50	
Horses	600 00	
Soil laboratory	200 70	

Animal Industry:		
Cattle	$1,363 75	
Hogs	74 00	
Dogs	45 00	
Fowls	185 50	
Waterfowl	46 00	
Pigeons	12 00	
Belgian hares	52 20	
Poultry appliances	289 25	
Tools, etc	523 31	
Grain	58 00	
		$2,649 01
Art:		
Casts	$230 44	
Photographs	221 20	
Other studio furnishings	795 83	
		1,247 47
Boarding Hall:		
Furniture	$1,157 53	
Linen	309 44	
Silver and dishes	549 12	
Kitchen furnishings	1,030 35	
		3,046 44
Laundry		768 20
Botany:		
Microscopes and accessories	$699 11	
Models, maps, charts, and photographs	133 50	
Laboratory furniture	232 10	
Apparatus and tools	281 44	
3,531 herbarium specimens and other museum material	225 38	
		1,571 53
Chemistry:		
Apparatus	$3,564 04	
Chemicals	1,308 05	
		4,872 09
ivil Engineering and mathematics		883 08
eology		250 00
orticulture		102 75
Library		16,368 69

Mechanic Arts:		
Machine shop	$5,118 76	
Mechanical drawing	322 87	
Mechanical engineering	1,163 67	
Forge shop	268 55	
Patternmaking	88 10	
Carpenter shop tools	782 14	
Woodworking	1,486 53	
		$9,230 62
Physics and Electrical Engineering:		
Physics	$4,000 00	
Electrical engineering	2,461 72	
Lantern slides	534 78	
Physiographic models and photographic material	150 00	
		7,146 50
Typewriting		175 00
Zoölogy:		
Apparatus	$1,211 83	
Specimens	3,810 90	
Models and shells	1,721 62	
Furniture	141 25	
Other zoölogical material	57 30	
		6,942 90
Miscellaneous:		
Executive office furniture	$778 83	
Printing department	605 45	
Lippitt Hall furnishings	1,230 91	
Telephone system	558 71	
Davis Hall furnishings	483 95	
Store	788 44	
Military department	115 00	
Quarrying apparatus	1,635 00	
Watson House furnishings	471 39	
		6,667 68
Total, College		$246,664 08

Brought forward		$246,664 08
Agricultural Experiment Station:		
Agricultural Division	$1,935 25	
Apiary	366 20	
Biological Division	3,002 05	
Chemical Division	3,989 61	
Horticultural Division	577 34	
Office furniture and fixtures	1,679 47	
Library	1,900 00	
Photographic outfit	338 54	
Pot experiment house	1,025 00	
Poultry buildings	2,954 50	
Vegetation experiment outfit	619 00	
Total, Experiment Station		$18,386 96
United States property in trust for use in Military Department		3,150 00
Grand total		$268,201 04

Report of the Board of Managers, Rhode Island College of Agriculture and Mechanic Arts

KINGSTON, R. I.

PART I.

1905

SEVENTEENTH ANNUAL REPORT

OF THE

Corporation, Board of Managers

OF THE

Rhode Island College of Agriculture and Mechanic Arts.

MADE TO THE

General Assembly at its January Session, 1905.

1904 Part I.

Part II—Experiment Station Report—is printed under separate cover.

Part III—Catalogue—is printed under separate cover.

Providence, R. I.
E. L. Freeman & Sons, Printers to the State,
1905.

Rhode Island College of Agriculture and Mechanic Arts.

Corporation.

HON. MELVILLE BULL.....NEWPORT COUNTY.
HON. C. H. COGGESHALL.....BRISTOL COUNTY.
HON. CHARLES DEAN KIMBALL.....PROVIDENCE COUNTY.
HON. THOMAS G. MATHEWSON.....KENT COUNTY.
HON. J. V. B. WATSON.....WASHINGTON COUNTY.

Officers of the Corporation.

HON. CHAS. DEAN KIMBALL, President.....P. O., PROVIDENCE, R. I.
HON. C. H. COGGESHALL, Clerk.....P. O., BRISTOL, R. I.
HON. MELVILLE BULL, Treasurer.....P. O., NEWPORT, R. I.

REPORT.

To His Excellency George H. Utter, Governor, and the Honorable General Assembly of the State of Rhode Island and Providence Plantations, at its January Session, 1905:

I have the honor to submit herewith the Seventeenth Annual Report of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, as required by law.

CHARLES DEAN KIMBALL,

President of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts.

In order to place before your Excellency and the Honorable General Assembly the present condition of affairs at the college and to transmit such recommendations as have been made by your Board and by the president of the college, we include as Part I of this report the following: A statement of appropriations to be asked of the General Assembly—this statement embodying resolution of the Board of Managers; the annual report of the treasurer of the Board; and the report of the president of the college for the year. Part II will contain the usual report of the experiment station. Part III will be a statement of the courses of study and other details.

STATEMENT OF APPROPRIATIONS TO BE ASKED OF THE GENERAL ASSEMBLY BY RESOLUTION OF THE BOARD OF MANAGERS OF THE RHODE ISLAND COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

For current expense bills remaining unpaid January 1, 1905	$5,000 00
For student labor and agricultural demonstration	4,000 00
For repairs of poultry yards and buildings, experiment station	500 00
For general repairs and minor equipment, college	2,000 00
For greenhouse and attached building for teaching	15,000 00
For buildings and equipment for poultry teaching	5,000 00

CHARLES DEAN KIMBALL,
C. H. COGGESHALL,
J. V. B. WATSON,
THOS. G. MATHEWSON,
MELVILLE BULL.

TREASURER'S REPORT.

MELVILLE BULL, *Treasurer, in account with the* RHODE ISLAND COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

1904.	DR.	
Jan. 1.	To cash balance on hand	$1 74
	Receipts from president of college for students' board, etc.	18,175 83
	Interest	42 41
		$18,219 98

1904.	CR.	
By salaries		$474 98
	Postage and stationery	273 90
	Freight and express	493 87
	Traveling	201 53
	Labor	5,900 75
	Store	1,748 61
	Construction and repairs	1,382 68
	Provisions	2,715 40
	Boarding expense	1,022 40
	Grain	580 31
	Gasolene	76 52
	Fertilizer	120 60
	Coal	1,136 70
	Printing	302 60
	Telephone	51 60
	Advertising	72 50
	Incidentals	1,598 99
	Balance on hand	66 04
		$18,219 98

This is to certify that we, the undersigned, auditing committee of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, have examined the account of Melville Bull, treasurer, as above, and find the same to be correct, leaving a balance in the hands of said treasurer of sixty-six dollars and four cents ($66.04).

THOMAS G. MATHEWSON,
J. V. B. WATSON,

Auditors.

MELVILLE BULL, *Treasurer, in account with the* UNITED STATES FUND OF 1862.

1904.	DR.	
Jan. 1.	To balance from last year	$2,884 48
	Interest received from state treasurer	2,500 00
		$5,384 48

1904.	CR.	
By instruction		$2,070 02
	Apparatus	226 79
	Text-books and reference books	620 65
	Stock and material	219 13
	Balance on hand	2,247 89
		$5,384 48

This is to certify that we, the undersigned, auditing committee of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, have examined the accounts of Melville Bull, treasurer,of the United States Fund of 1862, and find the same correct.

The total receipts were $5,384.48, and the total expenditures were $3,136.59 thus leaving a balance of $2,247.89 to new account.

THOMAS G. MATHEWSON,
J. V. B. WATSON,

Auditors.

THE RHODE ISLAND STATE AGRICULTURAL EXPERIMENT STATION, *in account with the* UNITED STATES APPROPRIATION.

1904. DR.

To receipts from the treasurer of the United States as per appropriation for fiscal year ended June 30, 1904, as per act of Congress approved March 2, 1887	$15,000 00

1904. CR.

By salaries	$8,758 84
Labor	1,561 54
Postage and stationery	283 52
Freight and express	115 49
Publications	71 65
Heat, light, and water	658 94
Chemical supplies	83 72
Seeds, plants, and sundry supplies	336 42
Fertilizers	243 14
Feeding-stuffs	563 70
Library	605 04
Tools, implements, and machinery,	699 37
Furniture and fixtures	33 02
Scientific apparatus	44 14
Live stock	28 35
Traveling expenses	174 69
Contingent expenses	15 00
Building and repairs	723 43
	$15,000 00

We, the undersigned, duly appointed auditors of the corporation, do hereby certify that we have examined the books and accounts of the Rhode Island State Agricultural Experiment Station for the fiscal year ended June 30, 1904; that we have found the same well kept and classified as above, and that the receipts for the year from the treasurer of the United States are shown to have been $15,000.00, and the corresponding disbursements $15,000.00, for all of which proper vouchers are on file and have been examined by us and found correct, thus leaving no balance.

And we further certify that the expenditures have been solely for the purposes set forth in the act of Congress approved March 2, 1887.

CHARLES DEAN KIMBALL,
C. H. COGGESHALL,

Auditors.

MELVILLE BULL, *Treasurer, in account with the* RHODE ISLAND STATE AGRICULTURAL EXPERIMENT STATION.

1904.	DR.	
To balance from last year		$2,157 72
Station receipts		534 53
Interest		98 75
		$2,791 00

1904.	CR.	
By publications		$11 15
Traveling		80 57
Contingent expenses		2 88
Postage and stationery		31 35
Seeds, plants, and sundry supplies		12 69
Building and repairs		41 05
Balance on hand		2,611 31
		$2,791 00

This is to certify that we, the undersigned, auditing committee of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, have examined the accounts of Melville Bull, treasurer, of the Rhode Island State Agricultural Experiment Station, and find the same correct.

The total receipts were $2,791.00, and the total expenditures were $179.69, thus leaving a balance of $2,611.31 to new account.

CHARLES DEAN KIMBALL,
C. H. COGGESHALL,

Auditors.

Synopsis of the Report of the Treasurer of the Rhode Island College of Agriculture and Mechanic Arts to the Secretary of Agriculture and the Secretary of the Interior, of amount received under Act of Congress, of August 30, 1890, in aid of Colleges of Agriculture and the Mechanic Arts, and of the disbursements thereof to and including June 30, 1904.

Balance on hand July 1, 1903	
Installment for 1903–4	$25,000 00
	$25,000 00

DISBURSEMENTS THEREOF FOR AND DURING THE YEAR ENDING JUNE 30, 1904.

SCHEDULE A.—Disbursements for Instruction in Agriculture and for facilities for such instruction	$3,803 77
SCHEDULE B.—Disbursements for Instruction in the Mechanic Arts and for facilities for such instruction	7,411 98
SCHEDULE C.—Disbursements for Instruction in the English Language and for facilities for such instruction	2,202 71
SCHEDULE D.—Disbursements for Instruction in Mathematical Science and for facilities for such instruction	1,716 86
SCHEDULE E.—Disbursements for Instruction in Natural Science and for facilities for such instruction	6,764 68
SCHEDULE F.—Disbursements for Instruction in Economic Science and for facilities for such instruction	3,100 00
Total expenditure for the year	$25,000 00

I hereby certify that the above account is correct and true, and, together with the schedules hereunto attached, truly represents the details of expenditures for the period and by the institution named; and that said expenditures were applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their application in the industries of life, and to the facilities for such instruction.

MELVILLE BULL,

Treasurer.

This is to certify that we, the undersigned, auditing committee of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, have examined the above accounts of Melville Bull, Treasurer, with the accompanying vouchers, and have found the same to be correct.

CHARLES DEAN KIMBALL,
C. H. COGGESHALL,

Auditors.

REPORT OF THE PRESIDENT OF THE COLLEGE.

To the Honorable Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts:

GENTLEMEN:—I submit herewith the following report of our college work for the year ending December 31, 1904.

The year has been one of general prosperity. There has been no instance of contagious disease among the college population, and very few cases of illness of any kind. The attendance for the college year ended June, 1904, was as follows:

College	48
Preparatory school	67
Specials	5
Farm-practice, 4; poultry keeping, 21	25
Total (none counted twice)	142

This is an increase of 35 over the previous college year, and represents the largest attendance in the history of the college. For the fall term just closed I am able to report an attendance of 131, or an increase of 19 over the same term last year. The present enrollment is divided as follows:

College	57
General preparatory course	59
Industrial high school	5
Agricultural high school	1
Specials	3
Special winter course—Farm practice	6
Total	131

To this will be added for the college year the students in poultry keeping and farm mechanics, both courses beginning after the holidays.

This increase in attendance represents, I believe, a normal and healthy growth. No attempt has been made to "boom" the attendance. Indeed, this last term, candidates for admission were scrutinized with unusual care, but for which fact our entering classes would undoubtedly have been considerably larger. One of the interesting phases of the increase is the growth in the number of boarding students. The college serves a useful purpose in southern Rhode Island in ministering to the needs of the local population, which shows its interest by contributing a goodly proportion of the attendance of the college; two years ago the majority of the students of the college were day students. The boarding students mainly represent the attendance from any considerable distance, and consequently the usefulness of the college to other portions of the state. The following table illustrates the change that has taken place in this respect:

	1903. Spring term.	1903. Fall term.	1904. Fall term.
Day students	45	57	43
Boarding students	30	51	82

During the past term the average attendance at the dining-hall was 94. It has been necessary to set two tables, as the dining-room accommodates only 60 at one time. A year ago last spring there were 35 cadets in military drill; last year there were 65, and this fall 90 are enrolled. Two years ago there were only two students regularly enrolled for agriculture; last year there were 6 such students, and this fall there were 10.

I have given these facts merely to indicate the extent and direction of the growth of the college. We hope to secure an even larger proportion of students from the central and northern parts of the state and also a steady increase in the number of students who come primarily for the study of agriculture.

CHANGES IN THE FACULTY.

Miss Harriet L. Merrow was granted leave of absence for the college year of 1904–05, for purposes of advanced study, and a portion of the regular work in botany has been assumed by Professor John Barlow. Miss Elizabeth W. Kenyon was elected secretary of the faculty for the year in place of Miss Merrow. Major Lewis Balch, in June, accepted an appointment in the United States service in Panama, and relinquished his position as instructor in military science and tactics. Major Balch, during his year of service, gave a new impetus to military drill in the college, bringing out many new plans and enthusing the students for the work. For the current college year the college has secured the services of Captain Maurice H. Cook, of Providence. Captain Cook has had previous experience in the drilling of cadets, as well as in the army. He is carrying forward with zeal and success this important branch of our college work. Mr. A. E. Stene was elected, April first, superintendent of college extension. Mr. J. Weston Hutchins, who had accepted the position for a period of six months, returned to his home in Michigan. He succeeded in laying the foundations for this important branch of our college activities. At the end of the college year Mr. Walter A. Mitchell resigned as instructor in physics and electrical engineering, and Walter S. Rodman, a graduate of this college in the class of 1904 in the course in electrical engineering, was appointed to this position, with additional duties as instructor in mathematics.

CHANGES IN COURSES.

The only change of importance during the year has been to carry out the vote of the Board establishing a course in highway engineering. This course as outlined in the catalogue gives a thorough foundation in civil engineering and attempts to bring the student during the senior year into touch with the practical as well as the theoretical problems involved in the actual construction of highways, under diverse conditions. Several of our present students elected

the course, and we have reason to think it has attracted considerable attention outside of the college. By resolution of your Board, negotiations were opened with the town council of the town of South Kingstown relative to a working agreement by which the college might utilize the road machinery of the town and, at the same time, be of some possible assistance to the town in its road work. The town council seemed very much interested in our proposition, and, while no contract was entered into, they subscribed to an agreement which is practically covered by the following letter to the present road commissioner of the town:

KINGSTON, RHODE ISLAND, March 15, 1904.

MR. P. O. LITTLEFIELD,

Wakefield, Rhode Island.

DEAR SIR:—In accordance with the suggestion of yesterday, I am transmitting the plan and agreement reached between the town council and yourself as road commissioner on the one hand and Dr. Hewes and myself as respecting the college on the other hand, relative to use of the town road machinery by the college and also for the work of our highway-engineering students on the roads of the town.

1. It is understood that our professor of highway engineering and his students in that subject will be allowed to make observations, estimates, etc., of the roads and road work of the town. Also, that it will be permissible, after a proper arrangement with yourself, for the professor and his students to take charge of a short piece of road work in order that the student may secure first-hand practice in road work; this work, of course, to be done satisfactorily to yourself, without expense to the college, and without extra cost to the town except so far as you may determine.

2. In case the college wishes to build roads on its own property, the town will loan to the college its road machinery, including crusher, roller, carts, sprinkler, etc., without rental; provided that the crusher will not be removed from its location, that the college will employ the town engineers for the crusher and the roller, will pay all expenses of running the machinery while in use on the college grounds, and will repair all damages incurred in such use.

3. It is understood that, in so far as our professor of highway engineering has time and opportunity, he will be glad to render any services to the town in respect to highway work that may be desired by yourself, and that may be consistent with his other duties.

4. It is understood that this is, in no sense, a contract, and that the arrangements may be terminated at any time by either party.

I desire to thank you most cordially for your interest in this matter, and, through you, to thank the town council for their attitude and for their willingness to be of assistance to us.

Very truly,

(Signed) KENYON L. BUTTERFIELD,

President.

MACADAM ROADS.

In connection with our highway-engineering course I desire to call the attention of your Board to the great importance of building macadam road upon the college grounds. I wish to recommend most earnestly that the legislature be requested to make a small appropriation each year, say of five hundred dollars, which may be expended under the direction of the department of highway engineering in building or repairing macadam road on the college grounds, with the understanding that this work is to be done both with the view of making a first-class and permanent road system and of meeting the needs of students who are taking the course in highway engineering. You will, I am sure, appreciate the fact that, if the course is to be made a complete success, the students must have the same facilities for laboratory practice and the same practical application of their theories as can be obtained in chemistry, mechanical engineering, or poultry keeping. A few hundred feet of road built each year would, in course of time, give us a system of beautiful and permanent roads, requiring small expenditure for repair, answering the needs of an increasing college population which has to depend upon the roads as sidewalks during all seasons, and offering an absolutely essential requisite to the students in highway engineering.

DEMONSTRATION AND EXTENSION WORK.

I again refer to this subject, covered at some length in my report of a year ago, because of its great importance. The college must more and more carry its work to the farmers, taking to them knowl-

edge and inspiration along all lines of farm business and farm life. During the past autumn a series of extension lectures has been held in various portions of the state. Mr. J. Weston Hutchins, of Michigan has been present at all of these, and Mr. A. E. Stene, our superintendent of extension work, at a number of them. Thirty-nine lectures were held, in 28 sessions, at 21 places, and it is estimated that between eight hundred and a thousand different farmers were reached. This was accomplished at a comparatively small expenditure of money on the part of the college. The list of dates and places follows:

November	14,	1904.	Arnold's Mills.
"	15,	"	Primrose Grange, Woonsocket.
"	16,	"	R. I. Horticultural Society, Providence.
"	17,	"	Harrisville.
"	18,	"	Greenville.
"	21,	"	Summit.
"	22,	"	Rocky Hill.
"	23,	"	Lime Rock.
"	25,	"	East Woonsocket.
"	28,	"	Exeter.
"	29,	"	Davisville.
"	30,	"	Woody Hill.
"	30,	"	Hope Valley.
December	1,	"	Wakefield.
"	3,	"	Point Judith.
"	5,	"	Bristol Ferry.
"	5,	"	Portsmouth.
"	6,	"	Middletown.
"	7,	"	Tiverton Four Corners.
"	8,	"	Perryville.
"	9,	"	Little Compton.

As spring approaches, Mr. Stene will spend a large portion of l time in giving demonstrations in spraying for insects and dises that may trouble the orchards of the state. An attempt is being made to interest the teachers of the state in various form nature study.

CHANGES IN FACULTY ORGANIZATION.

During the year the faculty has adopted revised by-laws. Under the new plan the faculty is divided into *the faculty proper*, consisting of all employees listed in the catalogue, including the experiment-station workers, and *the faculty council*, formerly the "jury," made up of administrative heads of departments of the college. The plan is based upon the idea that the general legislative and administrative work of the college can best be handled by a comparatively small body and that it should lie in the hands of those chiefly responsible, namely, the heads of departments. On the other hand, there are many questions of general policy which are of interest to all employees of the college. Under the plan adopted the faculty will hold occasional meetings for discussion of subjects of general interest. It may pass such resolutions as it chooses, but these are merely expressions of opinion and do not bind the faculty council in any way. It is thought that this very simple device will relieve the faculty council of considerable work, will engender a new interest, on the part of all members of the faculty, in the larger college problems, and will give a better opportunity to those members of the faculty who are not heads of departments to acquaint themselves with the purposes and methods of the institution.

In connection with this new arrangement, the committee system of the faculty council has been elaborated to some extent. More details of administration are left with the committees, but the committee appointments are so made and the list of committees so formed that it is hoped that no member of the council will be seriously burdened with these duties.

During the past term a plan has been evolved for enabling the council to keep more closely in touch with students who are becoming delinquent in classwork. A system of bi-weekly reports is made to appropriate committees which take up each case on its merits and bring the matter to the attention of the student, or, if necessary, to the faculty council itself.

STUDENT COUNCIL.

About a year ago the students were invited to elect a council of seven members; composed of two from the senior class, two from the junior class, and one each from the sophomore class, the freshman class, the preparatory school. No definite plan of organization was suggested, but the council was invited to take up for discussion and action such questions as might be presented to it by the student body or by the faculty itself. It was thought that a committee of students of this kind, made up of responsible men and women, interesting itself in the various phases of college life, meeting, with greater or less frequency, individuals or committees of the faculty council, would eventually become an agency of great value to the student life. The council has adopted a constitution, appointed committees, and has already had before it a number of questions for decision and action. Thus far the plan has worked well, and we hope that it will justify expectations by becoming a wise and efficient medium of communication between the students and faculty and will assist in developing genuine college spirit.

VISITATION OF OTHER COLLEGES.

By consent of your Board, Professor Fred W. Card and myself visited last May all but one of the New England Colleges of Agriculture and Mechanic Arts. I think the general impression by this interesting and profitable trip was that all the New England institutions are very rapidly enlarging their facilities and increasing their attendance, and that they will soon rank among the most important educational agencies in New England. The situation with respect to agriculture in these institutions is especially gratifying. In nearly every case the attendance of agricultural students is on the increase, graduates of agricultural courses are being offered satisfactory positions as managers and superintendents of farms, and the attention of young men is being increasingly called to the opportunities, even in New England, for men who possess the requisite

training in agriculture. The general lesson for our college which we gathered was perhaps the fact that the people of Rhode Island must not ask us "to make bricks without straw," for it was noticeable that in these colleges the increase in the number of agricultural students was paralleled and usually preceded by increase in agricultural buildings and equipment.

COMMENCEMENT.

We were favored this year with good weather, and the commencement exercises were carried on in a satisfactory manner. Mr. W. E. McClintock, president of the Massachusetts Highway Commission, delivered the address of the day, on the subject, "The Economics of Good Roads."

ACCOUNTING SYSTEM.

By direction of your Board, after January first, 1905, the books of the treasurer will be kept at the college. In this connection, and also by your approval, a new accounting and bookkeeping system will go into effect. To assist in outlining this system we have had the expert services of Mr. Fred C. Kenney, cashier of the Michigan Agricultural College. We believe that the new system will not only give a clearer, more complete, and more easily accessible statement of all financial transactions, but will also compel a closer division of the funds; and will permit, what is extremely important, a perfectly clear and definite statement to the public of comparative expenditures from year to year.

FINANCES OF THE COLLEGE.

Your Board has already voted to ask the legislature for five thousand dollars to pay current bills incurred prior to January 1, 1905. But inasmuch as one year ago I brought this matter to the attention of your Board, and as I have also definitely suggested the plan to you since that time, I desire to record my view of the situa-

tion with respect to this appropriation. The college has, at this date, unpaid bills amounting to not less than five thousand dollars. On the surface this appears to be a deficit, but I want to make it very clear that it is not, in reality, a deficit, but *a debt*. In other words, the current appropriation of $15,000.00 for the immediate present is nearly adequate for our needs. This deficit, sometimes as low as three thousand dollars and sometimes as high as six thousand dollars, has been, as I understand it, a recurring fact in the college finances for some six or seven years. I take it that each year it has been the thought of the administration that some economies could be practiced by which this deficit could finally be wiped out. I have given this matter my best attention, and, although I indulged the same hope a year ago, it seems to me very clear that with a growing college and consequent new demands, it will be impracticable to reduce the debt in this manner. I therefore earnestly hope that the legislature will see its way clear to make this appropriation, in order that we may be able to start the new year with a clear record. I wish to say further, in this connection, that while it may be possible to make reductions in expenditure at some points, I do not believe that it is feasible to lessen expenditures by any large amount except by some drastic measures which would almost surely seriously cripple, if not destroy, the usefulness of the institution.

NEEDS OF THE COLLEGE.

It ought clearly to be understood by the people of the state that, while the college has a considerable income from the United States Government, through the two Morrill acts, there are absolute limitations as to the use that may be made of this income, and that, moreover, the state, in accepting these grants, has definitely agreed to support the institution at those points where the Federal funds are not available. The state, for instance, must furnish the land, all buildings and repairs of the same, all expense of maintenance of the plant, such as labor, fuel, express, and freight. In general terms, the Federal funds may be used only for immediate means of instruc-

tion, such as salaries, books, and tools for instruction. The state must, therefore, expect continuing, and probably increasing, calls for expenditures, provided the college is to carry out its function and to do the work prescribed for it by the Federal acts which created it, the terms of which the state has accepted.

I may say, in passing, that one of the needs of the college which must be met at an early date is a new dormitory for men students. The present dormitory, accommodating comfortably forty-five, contains this year about fifty-five students. Some fifteen or sixteen men students are living in private houses in the village of Kingston. But such accommodations in the village are strictly limited, and we must either interest someone in building private lodging or boarding-houses, or we must soon have another dormitory. As conditions exist, it is probable that the latter course will be the necessary one.

The most pressing needs of the college, in my judgment, are a greenhouse and a poultry plant. As I understand it, the people of Rhode Island desire that this college shall emphasize more than it has done in the past the teaching of agriculture. I do not believe that they desire us to tear out the courses in mechanic arts or even the courses in science and to turn the institution into a college solely for agriculture. But even if this radical and, to my mind, exceedingly unwise step were taken, we still should have inadequate facilities for the teaching of agriculture, simply because, as I indicated above, the Federal funds, no matter how large, can not be used for buildings. It must be remembered, moreover, that this problem of teaching agriculture is a very difficult problem. It involves a relatively large equipment. Agriculture can not be taught merely from books. Proper facilities for laboratory work must be provided. In view of these facts, I can not too strongly state that our facilities for teaching agriculture are grossly inadequate. The reason for this fact hinges on what seems to us the evident wisdom of emphasizing such phases of agriculture as shall meet the needs of eastern farming. We must bend our energies to instruction in those lines that promise to dominate Rhode Island agriculture. Therefore horticulture, in

its various phases, poultry keeping, and milk dairying are evidently lines of instruction which we must largely emphasize. I believe that this college is the only land-grant college in the Union which does not have a greenhouse; we ought to have one of the best in the country. While our poultry course has attracted attention all over the east, yet facilities for instruction, except for theoretical work, practically do not exist. Even the present short course seriously breaks into the work of experimentation, because we find it an absolute necessity to use certain portions of the equipment of the experiment station while the poultry students are taking their instruction work.

Let me say again that I believe that the need of a greenhouse and a poultry plant is the greatest need which exists at the college. If the people of the state really desire that agriculture shall be emphasized at this college, they must see to it that facilities for agricultural work are granted. We must decline to be responsible for building up the agricultural phases of our college work, unless we are given the proper tools to work with. With such facilities we have full faith in the success of these lines of agriculture. Without this equipment we shall do all we can to attract agricultural students, but we can not hope to make any marked progress until these essential buildings are placed at our disposal.

All of which is respectfully submitted.

KENYON L. BUTTERFIELD,

President.

December 31, 1904.

JLLETIN OF THE RHODE ISLAND COLLEGE
OF AGRICULTURE AND MECHANIC ARTS.
. 1. NO. 3. FOR FEBRUARY, 1906.

REPORT OF THE BOARD OF MANAGERS

PART I.

KINGSTON, R. I.

1906

PUBLISHED QUARTERLY BY THE COLLEGE
MAY, AUGUST, NOVEMBER, FEBRUARY

ENTERED AT KINGSTON [illegible]

R. I. FREEMAN [illegible]

BULLETIN OF THE RHODE ISLAND COLLEGE
OF AGRICULTURE AND MECHANIC ARTS
VOL. I. No. 3. FOR FEBRUARY, 1906.

REPORT OF THE BOARD OF MANAGERS

1905 PART I.

KINGSTON, R. I.

1906

PUBLISHED QUARTERLY BY THE COLLEGE
MAY, AUGUST, NOVEMBER, FEBRUARY

ENTERED AT KINGSTON, RHODE ISLAND, AS SECOND-CLASS MATTER

Rhode Island College of Agriculture and Mechanic Arts.

Corporation.

HON. MELVILLE BULL.....NEWPORT COUNTY.
HON. C. H. COGGESHALL.....BRISTOL COUNTY.
HON. CHARLES DEAN KIMBALL.....PROVIDENCE COUNTY.
HON. THOMAS G. MATHEWSON.....KENT COUNTY.
HON. J. V. B. WATSON.....WASHINGTON COUNTY.

Officers of the Corporation.

HON. CHARLES DEAN KIMBALL, President....P. O., PROVIDENCE, R. I.
HON. C. H. COGGESHALL, Clerk.....P. O., BRISTOL, R. I.
HON. MELVILLE BULL, Treasurer.....P. O., NEWPORT, R. I.

REPORT.

To His Excellency George H. Utter, Governor, and the Honorable General Assembly of the State of Rhode Island and Providence Plantations, at its January Session, 1906:

I have the honor to submit herewith the Eighteenth Annual Report of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, as required by law.

CHARLES DEAN KIMBALL,

President of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts.

In order to place before Your Excellency and the Honorable General Assembly the present condition of affairs at the college and to transmit such recommendations as have been made by your Board and by the president of the college, we include as Part I of this report the following: A statement of appropriations to be asked of the General Assembly, this statement embodying resolution of the Board of Managers; the annual report of the treasurer of the Board; and the report of the president of the college for the year. Part II will contain the usual report of the experiment station. Part III will be a statement of the courses of study and other details.

STATEMENT OF APPROPRIATIONS TO BE ASKED OF THE GENERAL ASSEMBLY BY RESOLUTION OF THE BOARD OF MANAGERS OF THE RHODE ISLAND COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

For electric lighting plant	$2,300 00
For experiment station turkey-yards	500 00
For bringing teaching equipment up to date	7,500 00
For repairs	5,000 00
For increase in annual current appropriation	10,000 00

CHARLES DEAN KIMBALL,
C. H. COGGESHALL,
J. V. D. WATSON,
THOMAS G. MATHEWSON,
MELVILLE BULL.

TREASURER'S REPORT.

MELVILLE BULL, *Treasurer, in account with the different funds of the* RHODE ISLAND COLLEGE OF AGRICULTURE AND MECHANIC ARTS, *as follows*:

MORRILL FUND OF 1890.

FOR YEAR ENDED JUNE 30, 1905.

1904.	DR.	
July 1.	By Installment for year	$25,000 00

	CR.	
SCHEDULE A.—Disbursements for Agriculture		$3,577 12
SCHEDULE B.—Disbursements for Mechanic Arts		7,533 02
SCHEDULE C.—Disbursements for English Language		3,248 31
SCHEDULE D.—Disbursements for Mathematical Science		1,774 52
SCHEDULE E.—Disbursements for Natural Science		5,765 03
SCHEDULE F.—Disbursements for Economic Science		3,102 00
		$25,000 00

MORRILL FUND OF 1862.

FOR YEAR ENDED DECEMBER 31, 1905.

1905.	DR.	
Jan. 1.	To balance from last year	$2,247 89

1905.	CR.	
By instruction		$1,354 84
Apparatus		84 96
Text-books and reference books		337 62
Balance on hand		470 47
		$2,247 89

HATCH FUND OF 1887 (EXPERIMENT STATION).

FOR YEAR ENDED JUNE 30, 1905.

1904.	DR.	
To appropriation from United States		$15,000 00

1905.	CR.	
By salaries		$9,377 76
Labor		1,854 43
Publications		45 67
Postage and stationery		144 76
Freight and express		109 40
Heat, light, and water		373 36
Chemical supplies		53 66
Seeds, plants, and sundry supplies		287 72
Fertilizers		169 03
Feeding-stuffs		645 80
Library		362 33
Tools, implements, and machinery		192 50
Furniture and fixtures		25 86
Live stock		432 50
Traveling expenses		268 39
Contingent expenses		15 00
Building and repairs		641 83
		$15,000 00

EXPERIMENT STATION. MISCELLANEOUS FUND.

FOR YEAR ENDED JUNE 30, 1905.

1904.	DR.	
To balance from last year		$2,611 31
Station receipts		1,028 81
Interest		98 33
		$3,738 45

1905.	CR.	
By labor		$318 17
Feeding-stuffs		46 65
Publications		3 08
Freight and express		7 62

1905.	
By Library and printing	$3 60
Tools and machinery	37 66
Seeds and sundries	25 92
Chemical apparatus	14 53
Fertilizers	5 60
Traveling	25 35
Scientific apparatus	1 50
Buildings and repairs	18 71
Contingent expenses	13 15
Balance on hand	3,216 91
	$3,738 45

STATE—MAINTENANCE FUND.

For Year Ended December 31, 1905.

1905.	Dr.	
Jan. 1.	To state appropriation	$15,000 00

1905.	Cr.	
By	salaries	$1,472 59
	Labor	6,082 67
	Traveling	139 99
	Postage and stationery	537 72
	Fuel	2,982 21
	Gasoline and oil	104 24
	Advertising in publications	69 96
	Telephone and telegraph	122 52
	Construction and repairs	744 98
	Commencement	283 26
	Freight and express	402 36
	Grain	945 40
	Fertilizers	336 83
	Seeds	69 39
	Horse-shoeing	90 41
	Miscellaneous	615 47
		$15,000 00

STATE—AGRICULTURAL DEMONSTRATION FUND. 1904.

For Year Ended December 31, 1905.

1905.	Dr.		
Jan. 1.	To balance from last year	$1,009	30

1905.	Cr.		
By traveling expenses		$21[illegible]	72
	Material	17[illegible]	11
	Salaries	52[illegible]	00
	Student labor	1[illegible]	21
	Freight and express	[illegible]	70
	Postage	[illegible]	81
	Labor	5[illegible]	79
	Miscellaneous	[illegible]	96
		$1,009	30

STATE—AGRICULTURAL DEMONSTRATION FUND. 1905.

For Year Ended December 31, 1905.

1905.	Dr.	
To state appropriation		$2,000 0[illegible]

1905.	Cr.	
By labor		$75 6[illegible]
	Salaries	525 0[illegible]
	Material	273 7[illegible]
	Traveling	165 7[illegible]
	Freight and express	4 6[illegible]
	Student labor	6 6[illegible]
	Apparatus	7 4[illegible]
	Balance on hand	941 1[illegible]
		$2,000 0[illegible]

STATE—STUDENT-LABOR FUND.

For Year Ended December 31, 1905.

1905.	Dr.	
To state appropriation		$2,000 00

1905.	Cr.	
By student labor		$1,792 26
By balance on hand		207 74
		$2,000 00

STATE—REPAIRS FUND. 1904.

For Year Ended December 31, 1905.

1905.	Dr.	
To balance from last year		$145 46

1905.	Cr.	
By labor		$39 68
Material		104 43
Freight and express		1 35
		$145 46

STATE—REPAIRS AND IMPROVEMENTS FUND. 1905.

For Year Ended December 31, 1905.

1905.	Dr.	
To appropriation		$2,500 00

1905.	Cr.	
By expenditures to date		$1,968 90
Balance on hand		531 10
		$2,500 00

STATE—BUILDINGS FUND.

For Year Ended December 31, 1905.

1905.	Dr.	
To appropriation		$20,000 00

1905.	Cr.	
By expenditures to date, Poultry plant		$2,893 34
Balance on hand		17,106 66
		$20,000 00

CURRENT FUND.

For Year Ended December 31, 1905.

1905.	Dr.	
Balance from last year	$2,510	68
Interest	307	43
Dormitory fees	1,459	40
Department sales	2,656	55
Department fees	1,480	28
Department service	576	51
Tuition	100	00
Trust fund	1,349	74
Miscellaneous	127	71
	$10,568	30

1905.	Cr.	
Trust fund	$1,116	85
Traveling	219	90
Postage	251	98
Repairs	557	83
Gasoline and oil	88	61
Fuel	310	28
Commencement	45	3[illegible]
Telephone and telegraph	80	4
Grain	1,353	[illegible]
Freight and express	311	
Salaries	408	
Labor	1,543	
Advertising in publications	7[illegible]	
Miscellaneous	64	
Balance on hand	3,5[illegible]	
	$10,5[illegible]	

TRUST FUND.

For Year Ended December 31, 1905.

1905.	Dr.	
To boarding department	$	

1905.	
To Bills receivable December 31, 1905	$1,208 11
Deficit	47 53
	$13,924 71

1905. Cr.	
By boarding department	$10,869 74
Laundry	616 89
Store	2,438 08
	$13,924 71

I hereby certify that the above account is correct and true, and truly represents the details of expenditures for the period and by the institution named.

MELVILLE BULL,

Treasurer.

This is to certify that we, the undersigned, auditing committees of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, have examined the accounts of Melville Bull, Treasurer of the Rhode Island College of Agriculture and Mechanic Arts, and find the same correct.

CHARLES DEAN KIMBALL,
C. H. COGGESHALL,

J. V. B. WATSON,
THOMAS G. MATHEWSON,

Auditors.

SUMMARY OF INVENTORY, DECEMBER 31, 1905.

Farm and campus		$14,855
Buildings:		
Watson House, purchased 1889	$383 25	
Taft Laboratory, built 1890	19,446 25	
Boarding Hall, built 1890	6,168 75	
Laundry, built 1901	1,068 75	
Ladd Laboratory, built 1890	7,800 00	
Davis Hall, dormitory, built 1895	40,156 90	
Botanical Laboratory, built 1895	713 50	
Chemical Laboratory, 1895	1,455 75	
Lippitt Hall, built 1897	29,700 00	
Greenhouse, built 1890	15 00	
Hot-bed and cold frames, built 1903	123 50	
Poultry buildings	3,664 00	
Carpenter shop, built 1895	380 00	
Ice house, built 1894	1,148 00	
Powder house, built 1892	44 10	
Forge shop, built 1892	296 00	
Horse barn, built 1890–1901	7,931 90	
Dairy barn, built 1898	6,370 00	
Barn on plain, built 1743–1902	2,251 75	
		$130,13[illegible]
Lighting, water, sewer and other systems:		
Electric lighting	$3,250 00	
Water	8,485 00	
Fire apparatus	1,067 16	
Plumbing	6,352 00	
Heating	16,848 50	
Gas mains	246 24	
Sewer	1,798 24	
Telephone	639 00	
		$38,68[illegible]
Equipment, apparatus, etc., by departments:		
Agriculture:		
Crops	$1,541 85	
Tools and machinery	1,494 30	
Wagons, harnesses, etc	1,152 12	
Horses	735 00	
Stable furnishings	96 37	

Lime	$15 00	
Soil laboratory equipment	198 80	
Lantern-slides	3 50	
Office and miscellaneous equipment	7 75	
		$5,244 69
nimal Industry:		
Cattle	$1,025 00	
Hogs	27 50	
Dog	20 00	
Fowls	208 20	
Belgian hares	5 00	
Poultry appliances	123 40	
Tools	1,223 34	
Grain	258 75	
Household furniture	15 75	
		$2,906 94
rt:		
Casts	$251 61	
Photographs, drawings, etc	313 35	
Furniture	246 80	
Draperies, art objects, etc	444 68	
		$1,256 44
Boarding:		
Furniture	$874 45	
Linen	250 00	
Silver and dishes	397 00	
Kitchen furnishings	811 00	
		$2,332 45
Laundry		752 84
Botany:		
Microscopes and accessories	$691 19	
Models, maps, charts, and photographs	133 50	
Laboratory furniture	229 46	
Apparatus and tools	290 59	
3,631 herbarium specimens and other museum material	231 98	
		$1,576 72
Chemistry:		
Chemicals	$1,050 00	
Apparatus	3,617 13	
		4,667 13

Extension		$148 06
Highway Engineering and Mathematics		965 53
Geology		250 00
Horticulture		253 80
Library		17,502 60
Mechanic Arts:		
Machine shop	$5,342 00	
Mechanical drawing	373 50	
Mechanical engineering	1,050 00	
Forge shop	250 00	
Patternmaking	96 00	
Carpenter-shop tools	677 73	
Woodworking	1,414 32	
Piping tools	150 00	
Pipe and fittings on hand Dec. 31, 1905	100 00	
		9,453 55
Military		80 00
Physics and Electrical Engineering:		
Physics	$4,220 00	
Electrical engineering	2,900 00	
Lantern slides	530 00	
Physiographic models and photographic material	150 00	
		7,800 00
Printing		605 45
Store		983 62
Typewriting		182 00
Zoölogy:		
Apparatus	$1,227 66	
Specimens	4,290 78	
Models and shells	1,699 05	
Furniture	141 25	
Other zoölogical material	350 50	
		7,709 24
Miscellaneous:		
Executive-office furniture	$775 00	
Lippitt Hall furnishings	1,129 84	
Davis Hall furnishings	401 30	

Watson House furnishings	$605 35	
Quarrying apparatus	1,366 50	
		$4,277 99
Total, College		$252,630 09
gricultural Experiment Station:		
Agricultural division	$2,223 09	
Biological division	5,338 28	
Chemical division	4,782 43	
Horticultural division	476 05	
Office furniture and fixtures	1,852 24	
Library	2,400 00	
Total, Experiment Station		$17,072 09
United States property in trust for use in military department		2,511 15
Grand total		$272,213 33

REPORT OF THE PRESIDENT OF THE COLLEGE.

To the Honorable Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts.

GENTLEMEN:—I submit herewith the following report of our college work for the year ended December 31, 1905.

ATTENDANCE.

The attendance for the college year ended June, 1905, was as follows:

College	58
Preparatory school	72
Farm practice, 6; poultry keeping, 15	21
Total (none counted twice)	147

This attendance is five greater than that of the previous college year, and is the largest in the history of the college.

For the fall term, just closed, I am able to report an attendance of 105, the present enrollment being divided as follows:

College	61
General preparatory	40
Industrial high school	3
Agricultural high school	1
Total	105

This statement shows a considerable falling off in comparison with the fall term of a year ago. The decline is wholly in the preparatory

school, the college enrolling four more than a year ago. The explanation lies, I think, in the following facts: (1) The special preparatory year of the preparatory school was abolished by faculty vote, and this alone probably made a difference of fifteen or more in the attendance. (2) It has been the policy of the president for the past two years to discourage the attendance of boarding students of immature years, and it has been his uniform advice to them and to their parents that the preparatory work should be taken in the home high school, if one is available. This policy has undoubtedly resulted in keeping away quite a large number of the class mentioned. (3) Owing to lack of funds, the advertising of the institution was not carried on last season in quite the same way as before.

The following table illustrates the changes which have taken place within the last few years in the proportion of boarding students to day students:

	1903. Fall Term.	1904. Fall Term.	1905. Fall Term.
Day students	57	43	36
Boarding students	51	82	69

It will be observed that, during the last few years, the proportion of boarding students to the total registration of regular students has increased from somewhat less than one-half to about two-thirds. This is indicative of a more widespread interest in the college and its growth into a genuinely state institution, although it is still serving southern Rhode Island.

Another significant change that has taken place is illustrated by the fact that in the autumn of 1903 only forty-eight per cent. of the students enrolled were in college work, while the past fall sixty per cent. of the students enrolled were college students. This is a substantial gain, but suggests the importance of coming into closer touch with the high schools of Rhode Island. These schools have never contributed their share of college students to this institution. For the three years 1900–1902 the average number of students entering the Freshman class of the college from high schools was but three.

For the past three years, it has been eleven. While this is a notable increase, it has been far from satisfactory. Not all of these came from high schools in this state. I hardly see why the high schools of Rhode Island alone should not furnish each year at least twenty-five or thirty students for our Freshman class. We have made some efforts to bring our college to the attention of high school principals, and the work has counted for something, but the problem is not yet solved. It is hoped that our college course may be more fully articulated with the typical high school course of the state, and that the high school principals, on their part, may understand more fully the opportunities that the college offers.

CHANGES IN THE FACULTY.

July last, Dr. L. I. Hewes, professor of mathematics and highway engineering, presented his resignation in order to accept a flattering offer from Yale University. It was with great regret that the resignation was received, as Dr. Hewes was considered one of our strongest teachers, a man of thorough training, scholarly instincts, clean-cut and progressive ideas of college work, and an inspiring teacher. The position thus made vacant was filled by the appointment for one year of Professor Robert H. Lee, of Cleveland, Ohio. Professor Lee is a graduate of Ohio Northern University and also of the Case Scientific School, has been a teacher of some years' experience, and was, at the time of his appointment, engaged in important practical work for the Lake Shore Railway.

Miss Harriet L. Merrow, absent last college year on leave, has resumed her duties as professor of botany.

Captain Maurice H. Cook, who gave the military instruction during the last college year, found himself unable to continue the work, and his duties have been taken over by Professor Lee. Captain Cook had unusual tact in dealing with students, inspired the cadets with enthusiasm, and brought the military department up to the high-water mark.

In August, Miss F. Pearle Tilton, who had been for three years

instructor in stenography and typewriting, resigned on account of ill health. The position was filled by the appointment of Miss Lillian E. Tolman, of Springfield, Massachusetts.

In October, Maurice A. Blake, instructor in horticulture, resigned to accept an offer from the Massachusetts Agricultural College, his Alma Mater. His place has been taken by Hugh L. Barnes, a graduate of the same college in the class of 1905.

Miss Sara L. McCrillis, who had served for nine years as matron of the boarding hall, resigned at the end of the college year. Miss McCrillis had unusual capacity, and her going was a distinct loss to the college. During the summer, the position of matron was occupied by Mrs. Elizabeth A. Gifford, and a permanent matron was secured in the person of Miss Sarah B. Breed, who had for many years been matron at the Friends' School, Providence, Rhode Island.

In October we secured the services of James G. Halpin as instructor in poultry keeping. Mr. Halpin is a graduate, in the agricultural course, of Cornell University, and while there took special work in poultry keeping. He has also had practical experience.

Upon the adoption of an accounting system a year ago it was necessary to have a bookkeeper in the executive office. This position has been acceptably filled the past year by Miss Harriet M. Adams, of Stonington, Connecticut.

COMMENCEMENT.

The Commencement exercises were considered unusually pleasant. The address of the day was given by Hon. Frank B. Sanborn, of Concord, Massachusetts, on "The Relation of Educated Industries to One Another." One feature of the day was a competitive individual drill, some thirty cadets participating, the prize being a handsome silver medal. There was also an exhibition drill by the battalion, to which a banner was presented by the women of the college; this banner, in the future, will be competed for in a drill by the rival companies. Another pleasant feature of the day was the presentation to the college of a large and fine-toned bell, by the class of 1900.

During the year, the class of 1895 placed in the social room a beautiful window-seat. These gifts from the alumni are indicative of a renewed loyalty and interest in the college, and are most gratifying to the present students and faculty.

CHANGES IN COURSES.

Owing to the enlarged facilities for teaching offered by the new poultry plant, the special winter course in poultry keeping has been extended to twelve weeks and has been strengthened in many ways. It was thought best to omit the special winter course in farm practice for the present season.

For two years, at least, the question of general college policy has been before our faculty. During the past autumn I therefore asked the faculty council committee on catalogue and courses of study to give careful detailed consideration to this subject. This committee is now making a thorough study of our present courses and considering the wisdom of such changes as shall bring our college more fully into line with existing needs and, at the same time, keep our work within the bounds of our probable financial resources. The conclusions of this committee will be submitted to you at a later date.

VISITING DELEGATIONS.

With the permission of members of your Board, last spring I extended an invitation to both houses of the General Assembly to visit the college in a body sometime during the summer. The invitation was accepted and June 27th was the date mutually agreed upon, and about sixty-five members of the Assembly, including a few state officers, were present. They inspected the experiment station grounds and the college buildings and equipment. Luncheon was served in the dining-hall. Many members of the Assembly expressed themselves as greatly pleased with the college, and, inasmuch as very few of them had previously visited the institution, it may safely be said that the visit was of the greatest value to the college.

On October 14th the annual visit by representatives of the Pomona and subordinate granges of the state was made, and all but four granges were represented. The cordial relations existing between this important farmers' organization and the college were thus more closely cemented.

APPROPRIATIONS.

It is worthy of note that all of the special appropriations requested by your Board a year ago were favorably acted upon by the General Assembly, all of them passing both houses without a dissenting vote and, as far as I am aware, without a dissenting voice. The list of appropriations was as follows:

For current expense bills remaining unpaid January 1, 1905	$5,000 00
For student labor and agricultural demonstration	4,000 00
For repairs of poultry yards and buildings, experiment station	500 00
For general repairs and minor equipment, college	2,000 00
For greenhouse and attached building for teaching	15,000 00
For buildings and equipment for poultry teaching	5,000 00

POULTRY BUILDING AND GREENHOUSE.

It became evident early in the year that, owing to the fact that the General Assembly had appropriated more money than existed in the state treasury, it would not be possible to build the new buildings provided by the General Assembly, during the fiscal year. This money was made available, however, January 1, 1906, and we succeeded in arranging a contract for the erection of the poultry plant by which it has been completed in time for the opening of the poultry school, January 2. This poultry plant consists of a building for teaching which includes large incubator and brooder rooms. The cost of the building was $3,150.00 and the cost of the heating and lighting will be about $800.00, leaving a balance for water supply, furnishings, incubators, brooders, grading, etc.

Within a few weeks completed plans for the proposed greenhouse and teaching building will be submitted to your Board, and it is

hoped that contracts will be arranged so that building may begin in early spring and the structure completed for use at the opening of the college year in the fall.

ACCOUNTING SYSTEM.

At the beginning of the last fiscal year the accounting system authorized by your Board was put into operation. The system has already proved its worth by enabling us to present to your Board each month a statement of our precise financial situation, and the annual report will be classified to show the precise way in which all of our funds have been expended. The year's experience apparently indicates that no radical changes in the system are necessary.

One of the most satisfactory phases of the accounting system is the plan whereby the accounts of the boarding hall, laundry, and college store are segregated and kept as a "trust fund." The theory is that these are not college expenses, but that the college is acting as trustee in behalf of the beneficiaries of these departments, and that the departments should be self-sustaining.

FINANCES.

Although the former system of bookkeeping made it difficult to tell precisely the financial situation of the college at any given time, it has been evident that, during recent years, the college was barely paying its expenses. During the past year an unusual effort has been made to keep down expenditures in all departments. The financial report will show a gain of approximately $1,500. By direction of your Board, a tuition fee of $30 per year is now charged to students non-residents of the state, and the incidental fee for all students has been increased from $2.25 per year to $9.00 per year.

EXTENSION WORK.

I again desire to call your attention to the demonstration and extension work of the college. I have taken pains to make special

inquiries during the past year of citizens of the state as to their opinion of the value of this work and, without exception thus far, the testimony has been entirely in its favor. I recommend its gradual enlargement. Never before has the college been in so close touch with the farmers and educators of the state. The work should be most cordially supported, and, whenever larger funds are needed, the legislature should be asked to make the required appropriations.

PRESENT NEEDS OF THE COLLEGE.

On this subject I desire to say, first, that I think it should be constantly made clear to the people and to the legislature of the state that the college must be adequately supported. It is a state institution. The state, by accepting the Federal grant, has distinctly obligated itself to maintain the institution as a college. This fact means not only an increasing amount for maintenance for some years to come, but fairly liberal appropriations for new buildings and equipment which can not practically be supplied—in many cases can not legally be supplied—by Federal funds. I fear that there has been a feeling, in some quarters, that the college was a burden and even a nuisance and should be starved to death. I hope the sentiment is changing. The college should be recognized as an essential part of the public school system of Rhode Island, and should be given the support consistent with the dignity and progressive spirit of a wealthy state.

Just at present there is not serious call for large buildings; but, after a careful study of the situation, I am convinced that there is a most pressing need for an increased annual maintenance fund and for special appropriations sufficient to bring the teaching equipment in all departments up to grade. My recommendations on this subject are represented by the following table of suggested appropriations for the current fiscal year.

1.	Electric lighting plant	$2,300 00
2.	Repairs and minor improvements	5,500 00
3.	Enlargement of boarding hall	1,900 00

4.	Student labor	$3,000 00
5.	Demonstration and extension	2,500 00
6.	Permanent improvement of land, roads, and lawns	1,500 00
7.	Advertising	500 00
8.	Pure-bred live stock (cattle, poultry, swine, sheep)	500 00
9.	Cost of transportation of day students	1,000 00
10.	Annual maintenance of equipment for teaching	3,000 00
11.	For bringing teaching equipment up to date	7,500 00

Let me state the reasons for these appropriations.

At present there is expended one half of the special appropriation, or $2,000 per year, for student labor. As a matter of fact the student-labor bill is about $3,000 per year, the remainder being paid from the state current appropriation. This sum is likely to represent for some time to come approximately the amount needed for this purpose.

At present $2,000 per year are given to demonstration and extension work. This work is extremely important and should be gradually developed. Five hundred dollars more could well be used for clerical work and for assistance in the field.

If our highway engineering course is to be maintained and properly developed, we should have $500 each year for the building of macadam roads on the grounds. I have recommended this in two previous reports and wish to renew the recommendation most urgently. We also need to spend $200 or $300 a year on other roads of the estate. An item of $500 to $750 for new plantings, care of lawns, and improvement of rough land would, in my judgment, be well expended. We ought to improve every acre of land we own and use it to the fullest capacity. For all these purposes $1,500 a year would be very desirable.

For a few years to come the college ought to spend $500 a year in advertising. Afterward the amount could be reduced. Our work is not sufficiently known. I have hesitated to do much advertising, especially the last year, because of lack of funds.

Taken as a whole, the live stock belonging to the college is not as good as should be possessed by an agricultural college. Even so meagre a sum as $500 a year, spent judiciously for pure-bred

cattle, poultry, swine, and sheep, would in the course of a few years give us a creditable exhibit of live stock.

A number of years ago the legislature passed a law requiring us to transport to and from Kingston station such students as did not wish to board at the college, and this without cost to them. But the legislature made no provision for the expense, which has increased until it is estimated to amount to nearly $1,000 per year.

I also recommend that the legislature be asked to provide $3,000 a year for the annual maintenance of equipment for teaching. This is about the annual expenditure per year at the present time.

Of course, it is feasible for us to ask the legislature each winter for such amounts as may be needed from time to time for ordinary repairs and minor improvements, but I think if we had $3,000 per year for this purpose the plant could be kept in creditable shape. I recommend that this be made a part of the annual appropriation.

The condition of the electric lighting plant is such that a new dynamo and a general overhauling of the lighting apparatus are absolutely essential.

The college dining-hall seats but sixty people. For the past two years we have been obliged to accommodate from seventy-five to one hundred and ten people. This has undoubtedly increased the expense and also the difficulty of giving good service. The need for enlarged kitchen and dining-hall facilities is becoming imperative, and plans are herewith presented which show how this can be done at a minimum expense. In my judgment, these changes will provide for the future growth of the college for a number of years to come.

When the various courses in the college were started, sufficient funds were available to give each course a fair equpiment; but the Federal funds have been so fully used for salaries that, during the past seven or eight years, the equipment for teaching, in some departments at least, has not been properly maintained. It has been estimated that $7,500 are needed to bring this equipment up to the present needs of the college, aside from books, for which our library

does not now offer shelf room. This can not possibly be done except by legislative appropriations, though the question may be asked, why can not the Federal funds be used? The reason is that those funds are very largely used for salaries and must be so used. I see no way by which our teaching force can be reduced without seriously crippling our work—rather, in some departments, it should be increased. . To illustrate, we now command the equivalent of the services of two men for teaching agriculture in all its phases. In order to give proper opportunities for instruction in agriculture we should be able to command the services of at least four men. We need, at once, a professor in horticulture and an assistant in chemistry, and if students increase in the near future, an assistant in horticulture. It would be a great gain to our students if we could employ a competent physical director to give all his time to his work. Moreover our salaries are small, and we can not hope permanently to retain some of our best men if salaries are not gradually increased to some extent. The item of $3,000 for equipment mentioned above would relieve the Federal funds so that we could secure the needed assistance in agriculture and adjust salaries on a better basis. It is true that the past fiscal year the college has more than met expenses, but this fact is partly due to an unusually large income from what are called our current receipts—student fees, sales of farm products, etc.—and we can not be sure that this income will be as large another year. Moreover, the new poultry plant and greenhouse will call for an annual expenditure of $1,000, and perhaps $2,000. If the legislature will give the college $3,000 for student labor instead of $2,000, and $1,000 for the transportation of students, the Morrill funds will be relieved sufficiently for present purposes.

If it be suggested that the courses should be so arranged and the number of instructors so determined as to leave a margin of several thousand dollars a year from the Federal funds for the maintenance of facilities for teaching, I would suggest that the college is now called upon to pay from this fund approximately $5,000 a year for instruction in the preparatory school. While a number of landgrant

colleges are maintaining, either directly or indirectly, preparatory departments, and while the legality of this procedure has never been tested, I think it is the general opinion of those best informed that Congress never intended these funds for any other purpose than for the maintenance of a *college* of agriculture and mechanic arts. If, therefore, the legislature of this state should grant us an amount annually sufficient to pay the cost of the preparatory school, the money arising from the Federal funds should be sufficient to maintain the equipment in so far as those funds can be used for the purpose.

To summarize the above in the form of a statement showing the scope of bills which I would recommend be presented to the legislature, there is appended the following table. This illustrates one method.

SPECIAL APPROPRIATION BILL.

1.	For electric lighting plant	$2,300 00
2.	For enlargement of boarding hall	1,900 00
3.	For Experiment Station turkey-yards (recommended by Dr. Wheeler)	500 00
4.	For bringing teaching equipment (apparatus, tools, and machines) up to date	7,500 00
		$12,200 00

In regard to the last item, I would suggest that the precise amount be left to the recommendation of the joint finance committees of the General Assembly after an investigation of our needs.

An increase in the current annual appropriation from $15,000 to $30,000 per year, to cover the following items:

1.	Student labor	$3,000 00
2.	Demonstration and extension work	2,500 00
3.	Improvement of land, roads, and lawns	1,500 00
4.	Advertising	500 00
5.	Pure-bred live stock (cattle, poultry, swine, sheep)	500 00
6.	Transportation of day students	1,000 00

7.	Maintenance of equipment for teaching	$3,000 00
8.	Annual repairs and minor improvements	3,000 00
		$15,000 00
	Grand total	$27,200 00

It will be noted that the amount needed for repairs and minor improvements for the current year is approximately $5,500, whereas the last item mentioned calls for but $3,000. Therefore, for the current year, if the above schedule were adopted, we should have little left for the annual maintenance of equipment for teaching. But the repair list is, this year, unusually heavy, and $3,000 would, I think, keep the plant in fair shape after this year.

In case it seems unwise to ask the legislature for this form of increase, it seems to me that an alternative method would be to ask for a special appropriation of $5,000 for repairs and minor improvements in addition to the other special appropriations of $12,200 mentioned above; $5,500 for student labor and demonstration work; $2,500 for improvement of land, roads and lawns, advertising, and live stock; $1,000 for transportation of students; and $3,000 for annual maintenance of equipment for teaching; total of $29,200.

THE POLICY OF THE COLLEGE.

It goes without saying that this call for larger financial resources involves the question of the determination of the future policy of the college. It must be remembered in this connection that there are certain limitations to the power of the legislature with respect to this matter, and certain obligations imposed upon the legislature by reason of the acceptance of the Federal funds. These limitations and these obligations grow out of the purpose and scope of the Morrill acts of 1862 and 1890. Without going into detail, it may be said that these acts, on the one hand, permit the establishment of an institution of the widest possible scope. It is perfectly legal, so far as the Federal law is concerned, to establish a state university. On the other hand, these acts permit the legislature to establish an in-

stitution with a very narrow range of subjects. But they do specify that the institution must be a college, not a school, and that it must give courses along industrial lines. It would seem, therefore, that the duty of the legislature and of the faculty of the college was to adopt a policy which should, while following lines permitted by the Morrill acts, also fall in with the industrial and educational conditions prevailing in the state. It seems to me that this policy in the main has been followed at this college. Three groups of courses have been adopted—the agricultural, the scientific, and the engineering or mechanic arts. If I were to criticise the way in which the college has developed, it would be to state that possibly we have too many separate courses leading to degrees. This matter is being considered by our faculty, and I prefer not to anticipate their judgment on this point. If, however, the question is asked, can we not reduce expenses by lessening the number of courses? I would say, after considerable study of the situation, that such a result would not accrue unless we should entirely cut out the work in mechanic arts. This alternative would, in my judgment, be suicidal. These courses in mechanic arts, as we have developed them, are entirely in harmony with the development of land-grant colleges generally, acting under the Morrill laws. In a state like Rhode Island, with its overwhelming proportion of manufacturing industries, which are constantly growing and constantly calling for an increasing number of trained men, it would be extremely unwise to abolish these courses. How is it with the work in science? If we were to do away with the courses in chemistry and biology and general science, we should still be obliged to teach those subjects in connection with an adequate agricultural course, and the saving in the teaching force would be inconsiderable. There may be other reasons for giving up the science courses, but the financial argument is not a very strong one.

In this connection I desire to state a few general principles that I believe should govern the future policy of the institution.

1. It should not imitate or try to rival the universities or great technical schools, either in equipment or in grade of work.

2. The courses, however, should, as far as they go, be thorough, and the quality of the work should be of the very highest.

3. Students' expenses should be kept very low, as they are now. The college ought thus to appeal to hundreds of young men who desire a good preparation for the "educated industries," but who, for various reasons, are not able to enter the larger technical schools.

4. If these principles are followed, it will soon be seen, I think, that there is abundant room for the college in Rhode Island, that it will not interfere in the slightest degree with Brown University or with any other institution of the state, and that it will secure, ultimately, several hundred students who otherwise would not be in any college.

5. The college should be regarded by the public, by the educators, and by the legislature as a part of the public school system of the state and should be brought into closer articulation with that system, and especially with the high schools. I am inclined to think that, to further this end, the Commissioner of Public Schools and possibly also the Governor of the state should be, *ex officio*, members of the Board of Managers.

6. The preparatory school of the college should be maintained, not as a high school competing with other secondary schools of the state, but as a means by which young men and women of somewhat mature years, who have left school at an early age, and who find themselves ambitious for a college course but entirely unable to complete the ordinary high school requirements, may bring up their preparatory work, while in residence at the college, in such a way that they can soon go on with the regular college courses at this institution.

FUTURE NEEDS OF THE COLLEGE.

Because of misapprehension in some quarters as to the needs of a growing and progressive state institution, I am taking the liberty

of stating, as briefly as possible, but with great frankness, what it seems to me are bound to become in the near future important requirements of this college, more particularly in the way of buildings. Of course a great deal depends upon the growth of the college in attendance of students, and I do not anticipate that any of these buildings will be asked for until there is an obvious need for them. But assuming, what I believe to be probable, that the college is destined to a steady and satisfactory growth, I desire to state—somewhat in the order of importance—some of the most obvious needs.

1. In order that the teaching of subjects connected with agriculture may be brought up to standard, it will be necessary, within a very short time, to complete the present poultry plant. According to the estimates presented to your Board a year ago $7,500 were needed for building the plant. But your Board thought it wise to ask for but $5,000 for this purpose. In the near future not less than $2,500, perhaps somewhat more than this, will be needed to complete the plant. In my judgment there should also be built, during the next year or two, a modest but well-equipped dairy building, in order that instruction in modern methods of milk production, particularly, may be properly given. The significance of this work, not only to our students but to consumers and producers of milk in Rhode Island, hardly needs argument.

2. Before further large buildings are erected, I would recommend the installation of a complete modern central heating-plant. The present system of individual heating of buildings is wasteful of coal and costly in labor. Our fire protection, although the best that we can make it under present conditions, is not entirely satisfactory. The electric lighting service for the future can be much more economically developed in connection with a central heating-plant. There are many other considerations which, to my mind, make a central heating-plant an early and imperative requirement.

3. An important need that will soon become a most pressing one is that of larger library facilities. Nine thousand books are now housed in a room only 28 by 31½ feet in size, which is also made to answer

for a reading-room. This reading-room has but twenty-seven seats and is utterly inadequate. Three thousand volumes belonging to the library are housed outside of this room. The library is growing at the rate of about twelve hundred volumes per year. The modern library is so vital a part of college work that it must be properly cared for. I can not too strongly urge this need.

4. As is well known to your Board, the various departments of agriculture and the sciences are inadequately housed. The department of chemistry, with an inventory equipment of nearly $5,000, is housed in a building erected nine years ago in the cheapest possible way, merely for temporary barracks and without the slightest thought that it would ever be used for anything permanent, much less for housing an important department. The department of botany is housed in the same fashion. The department of zoölogy is better provided for, but is inordinately crowded, with no opportunity to develop important museum features. The various departments of agriculture are being provided for in a fairly adequate manner through the erection of the new poultry plant and greenhouse, but there will still remain need for proper offices, laboratories, reading-rooms, and museums for the various branches of agriculture and horticulture. Consequently there should be erected, in the not distant future, either both a modern science building and a modern building for agriculture, or else these two lines of work should be combined and housed in a thoroughly equipped building for agriculture and science.

5. What is true of the science departments is true, in a somewhat less degree, of the engineering departments. Although these departments can now carry on their work fairly well, the time is not distant when there should be erected a modern, well-equipped building for the departments of woodworking, mechanical engineering, electrical engineering, and highway engineering.

6. One of the important necessities is an administration building. The present administration offices are very much crowded, and the members of the executive force work at a disadvantage. There is no

fire-proof vault and no place to put a vault for the proper preservation of important records.

7. As the attendance of the college increases, and unless private boarding-houses shall care for this increase, there will soon be need of another dormitory for men.

8. I trust that your Board will see its way clear before many years to permit the faculty to offer a course in home-making and domestic science for women. If this is done, there should be provided a women's building, to include facilities for instruction in domestic science and art and to serve as a dormitory for women students. The present Watson House is a mere makeshift as a women's dormitory, is difficult to keep comfortable, and is far from attractive.

9. It must be evident to your Board that the farm operations of the college are carried on at a great disadvantage because of the small amount of land which can be utilized and the scattered small fields into which even this meagre allotment is divided. Moreover, as soon as the United States Government appropriates additional funds for the experiment station, as it is likely to do in the near future, the experiment station will need more land. Consequently, I would strongly advise the acquiring of not less than 100 acres of land in addition to that already owned.

10. Another building that ought to be provided for under some auspices is a well-equipped gymnasium. Physical training has become a recognized and legitimate part of a college curriculum, and to carry it out in a proper manner a gymnasium is essential. In this connection I desire to suggest the need of a building, or a suite of rooms, for general social and religious purposes. It is possible that this need could be developed in connection with the gymnasium. The Y. M. C. A. could be housed in these rooms, and should take charge of the general religious work of the college. There should also be facilities for developing a genuine social centre for the men students.

11. As soon as the legislature can see its way clear to provide the

funds, I would strongly advise the erection of a dwelling-house on the college grounds for the use of the president of the college.

RESIGNATION AS PRESIDENT.

On January 2, 1906, I was elected to the presidency of the Massachusetts Agricultural College, and in order that I may accept that position I hereby tender my resignation as president of this college, the same to take effect, if it so please your Board, on June 30 next.

In this connection I desire to say that my action is prompted in no way by any dissatisfaction with my work here. On the contrary, I wish to bear testimony to the most delightful personal and official relations with the members of your Board of Managers, with the faculty and students, with the legislative and executive officials of the state, and with the people of Kingston and of the state at large. The proposition to go to Massachusetts came to me entirely unsought, and I consented to its favorable consideration only when convinced that the new position would offer me greatly enlarged opportunities in the field of distinctively agricultural education. It is with sincere regret, therefore, that I sever my connection with this college. I believe in its work. It has a great career of usefulness before it. I shall watch its development with the keenest interest and pleasure.

In closing, let me express my thanks to your Board for the uniform courtesy and cordial personal consideration of which I have been the constant recipient at your hands.

Respectfully submitted,

KENYON L. BUTTERFIELD,

President.

January 5, 1906.

ULLETIN OF THE RHODE ISLAND COLLEG
OF AGRICULTURE AND MECHANIC ARTS
L NO. 4. FOR FEBRUARY 19

REPORT OF THE BOARD OF MANAGERS

PART I.

KINGSTON, R. I.

1907

PUBLISHED QUARTERLY BY THE COLLEGE
MAY, AUGUST, NOVEMBER, FEBRUARY

ENTERED AT KINGSTON, RHODE ISLAND, AS SECOND-CLASS MATTER.

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BULLETIN OF THE RHODE ISLAND COLLEG
OF AGRICULTURE AND MECHANIC ARTS.
VOL. 2, NO. 4. FOR FEBRUARY, 190

REPORT OF THE BOARD OF MANAGERS

1906 PART I.

KINGSTON, R. I.

1907

PUBLISHED QUARTERLY BY THE COLLEGE
MAY, AUGUST, NOVEMBER, FEBRUARY.

ENTERED AT KINGSTON, RHODE ISLAND, AS SECOND-CLASS MATTER.

Rhode Island College of Agriculture and Mechanic Arts.

Corporation.

HON. ROBERT S. BURLINGAME ..... NEWPORT COUNTY.
HON. C. H. COGGESHALL ..... BRISTOL COUNTY.
HON. CHARLES DEAN KIMBALL ..... PROVIDENCE COUNTY.
HON. THOMAS G. MATHEWSON ..... KENT COUNTY.
HON. J. V. B. WATSON ..... WASHINGTON COUNTY.

Officers of the Corporation.

HON. CHAS. DEAN KIMBALL, President ..... P. O., PROVIDENCE, R. I.
HON. C. H. COGGESHALL, Clerk ..... P. O., BRISTOL, R. I.
HON. C. H. COGGESHALL, Treasurer ..... P. O., BRISTOL, R. I.

REPORT.

To His Excellency James H. Higgins, Governor, and the Honorable General Assembly of the State of Rhode Island and Providence Plantations, at its January Session, 1907:

I have the honor to submit herewith the Nineteenth Annual Report of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, as required by law.

CHARLES DEAN KIMBALL,

President of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts.

In order to place before Your Excellency and the Honorable General Assembly the present condition of affairs at the college, and to transmit such recommendations as have been made by your Board and by the president of the college, we include as Part I of this report the following: A statement of the appropriation to be asked of the General Assembly, this statement embodying resolution of the Board of Managers; the annual report of the treasurer of the Board; and the report of the president of the college for the year. Part II will contain the usual report of the experiment station. Part III will be a statement of the courses of study and other details.

STATEMENT OF APPROPRIATION TO BE ASKED OF THE GENERAL ASSEMBLY BY RESOLUTION OF THE BOARD OF MANAGERS OF THE RHODE ISLAND COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

For repairs.....	$3,639 00

TREASURER'S REPORT.

C. H. COGGESHALL, *Treasurer, in account with the different funds of the* RHODE ISLAND COLLEGE OF AGRICULTURE AND MECHANIC ARTS, *as follows:*

MORRILL FUND OF 1890.

FOR YEAR ENDED JUNE 30, 1906.

1905.	DR.	
Aug. 7.	To cash from United States	$25,000 00
	CR.	
	By instruction	$23,776 65
	Apparatus	813 79
	Text-books and reference books	349 65
	Stock and material	57 66
	Tools and machinery	2 25
		$25,000 00

MORRILL FUND OF 1862.

FOR YEAR ENDED DECEMBER 31, 1906.

1906.	DR.	
Jan. 1.	To balance from last year	$470 47
	Cash from State Treasurer	2,500 00
		$2,970 47
	CR.	
	By instruction	$1,894 51
	Text-books and reference books	176 67
	Balance on hand	899 29
		$2,970 47

STATE—MAINTENANCE FUND.

For Year Ended December 31, 1906.

1906. Dr.

To State appropriation	$15,000 00

Cr.

By salaries	$1,446 4[illegible]
Traveling	190 1[illegible]
Postage and stationery	891 0[illegible]
Construction and repairs	1,147 6[illegible]
Gasoline and oil	80 0[illegible]
Fuel	3,257 [illegible]5
Commencement	191 [illegible]9
Telephone and telegraph	92 [illegible]1
Feeds	224 [illegible]6
Freight and express	502 [illegible]8
Labor	5,735 [illegible]06
Fertilizers	319 [illegible]25
Laboratory material	279 [illegible]07
Miscellaneous	642 93
	$15,00[illegible] 00

STATE—AGRICULTURAL DEMONSTRATION FUND.

For Year Ended December 31, 1906.

1906. Dr.

To balance from last year	$94 1[illegible] 17

Cr.

By stock and material	$[illegible]
Apparatus	
Traveling	
Freight and express	
Postage and stationery	
Labor	
Salaries	
Horse labor	

STATE—STUDENT LABOR FUND.

For Year Ended December 31, 1906.

1906.	Dr.	
To	balance from last year	$207 74
	Cr.	
By	student labor	$207 74

STATE—REPAIRS FUND, 1905.

For Year Ended December 31, 1906.

1906.	Dr.	
To	balance from last year	$531 10
	State appropriation	5,500 00
		$6,031 10
	Cr.	
By	expenditures to date	$5,069 30
	Balance on hand	961 80
		$6,031 10

STATE—BUILDINGS FUND.

For Year Ended December 31, 1906.

1906.	Dr.	
To	balance from last year	$17,106 66
	Cr.	
By	expenditures, poultry-plant	$2,106 66
	Expenditures, greenhouse	10,256 10
	Balance on hand	4,743 90
		$17,106 66

STATE—SPECIAL EQUIPMENT FUND.

For Year Ended December 31, 1906.

1906.	Dr.	
To State appropriation		$7,500 00
	Cr.	
By expenditures to date		$5,197 95
Balance on hand		2,302 05
		$7,500 00

STATE—SPECIAL MAINTENANCE.

For Year Ended December 31, 1906.

1906.	Dr.	
To State appropriation		$10,000 00
	Cr.	
By student labor		$1,642 24
Road construction		580 37
Transportation		637 29
Agricultural demonstration		1,483 45
Department allotment		2,150 07
Balance on hand		3,506 58
		$10,000 00

CURRENT FUND.

For Year Ended December 31, 1906.

1906.	Dr.	
To balance from last year		$3,560 96
Interest		334 90
Dormitory fees		1,740 60
Department fees		2,408 92
Department sales		3,349 54

1906.

To	Department service	679 48
	Tuition	589 77
	Examinations	10 00
	Trust fund	1,055 77
	Miscellaneous	42 00
		$13,771 94

CR.

By	salaries	$1,038 58
	Traveling	233 93
	Postage and stationery	310 23
	Construction and repairs	1,167 39
	Gasoline and oil	157 60
	Fuel	1,502 13
	Telephone and telegraph	54 24
	Feeds	358 49
	Freight and express	222 21
	Labor	2,325 54
	Advertising in publications	82 74
	Cattle	329 00
	Furnishing	395 67
	Typewriter	84 00
	Insurance	75 66
	Horseshoeing	44 95
	Drain tile	40 72
	Dormitory rental	40 00
	Laboratory material	468 45
	Trust fund	1,360 96
	Miscellaneous	211 59
	Reserve fund	2,000 00
	Balance on hand	1,267 86
		$13,771 94

TRUST FUND.

FOR YEAR ENDED DECEMBER 31, 1906.

1906. DR.

To	boarding department	$11,468 20
	Store	2,541 16

To Laundry	
Bills receivable	1,011 01
Deficit	832 31
	$16,055 59

Cr.

By boarding	$12,340 69
Store	2,209 75
Laundry	249 50
Balance from last year	1,255 65
	$16,055 59

HATCH FUND OF 1887.

For Year Ended June 30, 1906.

1905. Dr.

To appropriation from United States	$15,000 00

Cr.

By salaries	$8,738 82
Labor	2,132 9[illegible]
Publications	53 0[illegible]
Postage and stationery	206 3[illegible]
Freight and express	177 0[illegible]
Heat, light, and water	478 [illegible]
Chemical supplies	40 [illegible]
Seeds, plants, and sundry supplies	286 [illegible]1
Fertilizers	276 [illegible]0
Feeding-stuffs	538 [illegible]9
Library	439 [illegible]5
Tools, implements, and machinery	485 [illegible]3
Furniture and fixtures	131 [illegible]9
Scientific apparatus	3 [illegible]5
Live stock	212 [illegible]0
Traveling expenses	211 [illegible]5
Contingent expenses	15[illegible] [illegible]0
Building and repairs	572 [illegible]9
	$15,000 [illegible]0

ADAMS FUND OF 1906.

For Year Ended June 30, 1906.

1906. Dr.

To appropriation from United States	$5,000 00

Cr.

By salaries	$496 30
Seeds, plants, and sundry supplies	39 97
Tools and machinery	531 20
Scientific apparatus	835 95
Chemical supplies	143 26
Traveling	192 31
Fertilizers	3 00
Library	222 21
Balance on hand	2,535 80
	$5,000 00

EXPERIMENT STATION. MISCELLANEOUS FUND.

For Year Ended June 30, 1906.

1905. Dr.

To balance from last year	$3,216 91
Station receipts	479 45
Interest	106 88
	$3,803 24

Cr.

By publications	$2 25
Postage and stationery	24 54
Seeds, plants, and sundry supplies	13 35
Traveling expenses	4 69
Buildings and repairs	13 48
Contingent expenses	23 30
Balance on hand	3,721 63
	$3,803 24

I hereby certify that the above account is correct and true, and truly represents the details of expenditures for the period and by the institution named.

C. H. COGGESHALL,

Treasurer.

This is to certify that we, the undersigned, auditing committee of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, have examined the accounts of C. H. Coggeshall, Treasurer of the Rhode Island College of Agriculture and Mechanic Arts, and find the same correct.

THOS. G. MATHEWSON,

CHARLES DEAN KIMBALL,

Auditors.

REPORT OF THE PRESIDENT OF THE COLLEGE.

To the Honorable Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts.

GENTLEMEN:—The following is a report of the college work for the year ending December 31, 1906.

My predecessor, President Kenyon L. Butterfield, now of the Massachusetts Agricultural College, and I arranged for me to meet him here the day before his departure for his new home on July 6, and accordingly I arrived at the college on July 5 and received from him an induction into the duties of the position he was vacating. President Butterfield had spent much time and thought in ordering and arranging things so that there should be as little difficulty as possible to me in transferring affairs to my hands. It is only right and proper that I should here acknowledge, not only the care and pains employed to avoid embarrassment to me and loss to the college, but also the power of controlling details, of separating, sorting, combining, and re-arranging displayed in the ordering of the transfer, and, indeed, recognizable throughout the affairs of the institution. I most heartily congratulate the college on the breadth of view, the sincerity of purpose, the strong spirituality, and the marked administrative ability of the man who, for the three years past, has surely and safely guided its interests. He has builded a strong and solid foundation on which may rise a noble superstructure.

ATTENDANCE.

The enrollment for the college year ended June, 1906, was as follows:

College students	65
Preparatory students	46
Special twelve-weeks course	24
Total (deducting names repeated)	131

The enrollment of the previous year was 147; it will therefore be noticed that there was, in 1906, a decrease as compared with the enrollment of the previous year. This decrease for the year was foreshadowed in President Butterfield's last (1906) report, and the nature of the decrease, together with the reasons therefor, are noted on pages 15–16 of said report. The decrease is there explained as taking place entirely in the preparatory department, and as being caused (1) by the abolishment of the "special preparatory year of the preparatory schools;" (2) by the policy, pursued during the year, of "discouraging the attendance of boarding students of immature years;" and (3) by lack of funds for adequate advertising.

I have quoted the preceding statements because they embody a statement of policy with which I thoroughly agree, and which I have followed in the administration of affairs during my incumbency. Our accommodations are quite limited, both in the classroom, laboratory, and dormitory space. It is therefore necessary that we utilize these accommodations to carry out as faithfully as possible the purposes contemplated in the acts of Congress and of the legislature establishing the college. These are two-fold, (1) To provide, for students, properly equipped to take up such work, college courses combining the most thorough scientific training along industrial, technical, and home-making lines (agriculture, the mechanic arts, and women's work) with those humanic studies that are necessary for participation in the activities of human society as now organized and for high æsthetic, moral, and spiritual life; (2) To provide for

other matured students, unable to take a full course, such short and special courses of scientific instruction and practice in vocational work as can, without reference to previous preparation, be dogmatically imparted, assimilated, and applied to specific pursuits in life.

It gives me peculiar pleasure to state that the policy so inaugurated and so carried out is bringing fruit, as evidenced by the enrollment of the year, so far as it has progressed. For the fall term the attendance was 114, divided as follows:

College	76
Preparatory	34
Industrial high school	4
Total (no names repeated)	114

Including the opening of the winter term just begun, the enrollment stands thus:

Seniors	9
Juniors	12
Sophomores	15
Freshmen	35
Specials	7
Total, college students	78
Preparatory	41
Short course (Poultry)	21
Total (no names repeated)	138

Several things are to be noted in considering this enrollment.

(A) There has been a marked increase in the enrollment of college students, appearing in an entering class of 41, of which some 26—not including graduates of our own preparatory school—are high school students.

(B) There is a decrease in the number of purely preparatory students. We have made no effort to increase the attendance in this direction; on the other hand, we have discouraged all persons who

ɔt have some special claim upon us, such as lack of ready access high school, or the like, and have declined to enroll some on unt of lack either of preparation or maturity. The following .e shows the steady increase of college students and the decline preparatory students in the last four years:

	1904.	1905.	1906.	1907.
College	48	69	65	78
Preparatory	72		46	39

As an almost necessary concomitant of such increase of college students as against a decrease of preparatory students has come an increase of boarding students. We are taking our college men from a wider range of territory. I present a comparative statement:

	Fall Term, 1903.	Fall Term, 1904.	Fall Term, 1905.	Fall Term, 1906.
Day students	57	43	36	32
Boarding students	51	82	69	84

DORMITORY ACCOMMODATION.

This last change is bringing before us, in very acute form, the question, what are we going to do for boarding accommodations? Your honorable board has voted not to approach the legislature for anything more than repairs. Yet I feel it to be my duty to put in very clear form the situation for the immediate future, as I see it.

We have now a dormitory built to accommodate about forty-five students comfortably. In the planning of the building space might, I think, have been better utilized; but that matter is at the present time not under consideration. By undue crowding we have now in this dormitory sixty-four students, the curator of the dormitory and his family, and a janitor. Besides, we are using four of the rooms for classroom and laboratory work. We have forty-one students now rooming in the village and at places on the grounds other than the dormitory. This number (41) includes twenty-one poultry stu- dents now taking instruction at the special poultry school. The ac

commodations in the village are uncertain and inadequate. We exhausted them at the beginning of last fall, and one or two persons did not enter because they could not obtain such accommodations as they desired. It is evident, therefore, that, not considering for the time being the poultry students, the limit of accommodations for our regular boarding students has been reached. There are in all eighty-four places for such persons, and no more. Now, taking the ratio of return among upper class students established by previous experience, we may confidently calculate that we shall have thirty-eight of the present college men returning next year as boarders, leaving as available space for new and preparatory student boarders forty-six places. Of the preparatory students this year, twenty-four are boarders; and of the present freshman class, thirty-three. Assuming that we are merely to maintain the position now won, admitting exactly the same number of students next year in preparatory and freshman work that we have admitted this year, it will readily be seen that we shall have on our hands fifty-seven persons to put in forty-six possible places.

This situation ought to be faced frankly and squarely. It will be noticed that I have allowed for the usual decrease in preparatory students by reckoning preparatory and freshman students together, so that the decrease in preparatory students, if continued as previously represented, will be offset by corresponding increase in freshmen. For the coming year, then, one of two courses we must choose between, viz., either to cut down the next class by eleven, or to ask for the funds to put up another building.

NEEDS AS TO CLASSROOMS AND BOARDING HALL.

It is, moreover, my duty to make clear to you that the situation is acute not only as to dormitory accommodations, but also as to classroom space and boarding-hall accommodations. We have, as distinct from the laboratories, only four classrooms. That means that it is impossible to schedule at the same hour more than four classes, and this fact creates very real difficulties in making out the programme. But the more serious concern still is with the boarding hall.

Here we are compelled to set two tables at each meal, indeed, I may say three, since those students who have to wait on the first two tables must still eat after the others have finished. There are grave objections to this arrangement from every point of view. It is provocative of discontent and disorder; it greatly increases the expense; it consumes invaluable time. But, worst of all, it makes it almost impossible to obtain and retain help.

A NEW BUILDING.

I respectfully submit for your consideration the foregoing threefold need which is immediately upon us. A new building providing a large basement for convenient kitchen and dining-hall for one hundred persons; suitable accommodations on the first floor for the chemical department (leaving their present house-space for classrooms), and dormitory space on the second and third floors for forty or fifty students, seems to me to be the one great pressing need of the institution at this time. The legislature, at its meeting of last year, provided for an equipment in mechanical and electrical engineering that places these departments of the college well to the front, enabling them to furnish a kind and quality of instruction in these branches fully equal to the best given in the land-grant colleges of the country. The appropriations of the year before for poultry equipment and for greenhouse have very materially enlarged and strengthened our capabilities on the agricultural side. These additions have materially raised the standing and reputation of the college among the people, and as a result students are beginning to come to us in increased numbers. Are we to discourage and destroy the movement at its very beginning?

A WOMEN'S DEPARTMENT.

Not only would such a building relieve the situation at present existing, but it would also forward a modest development in another direction in which a need of the State, now growing more and more

apparent, is being felt; this is in the industrial education of our young women. The school now meets the demand for the training of the *man* of action, through its courses that prepare men for exploiting the great source of wealth, the ground; and for playing a part in the mechanical transformation and transportation of wealth. The same need for training to take hold on life on the side of its material activities exists in the case of young women. An ability to understand, grapple with, and successfully meet the economic and sociological conditions that surround the home is of increasingly vital importance to the home-maker, and can be obtained only by a practical training in science, applied to the problems of the home, carried on under the same principles now exemplified in our courses for men. If we had the new building I have previously urged, it would enable us to utilize the boarding hall as a small women's dormitory and make a beginning of work in this direction. The young women now in the school need, and should receive, better accommodations, and more especially a kind of work better adapted to their own peculiar needs in life, than they are now getting in the college.

FUNCTION OF THE COLLEGE IN THE STATE EDUCATIONAL SYSTEM.

It may be well just here to explain what I consider the function of the college in our educational system. At the very outset it becomes necessary to say that a college of this kind represents and embodies, not so much an occupation, as a theory of education formed to meet modern necessities. Aside from pure culture, all education involves (1) a discipline or training of the faculties and (2) a body of logically connected knowledge in the acquirement of which the brain may be disciplined. There can be no discipline without some systematized knowledge upon which that discipline may exercise itself. Modern education has exalted the disciplinary phase of its work so far as to have little regard for the knowledge-content, and indeed its representatives have positively asserted that the practical value and the disciplinary value of a subject are inversely proportional." Conse-

quently, the schools of the conventional type have concerned themselves little, or not at all, with the array of knowledge and the activities with which the man of action must busy himself in actual life, and they have *measured the degree of success attained in discipline or training by the developement of powers characteristic of the man of speculative life.*

It is here that our theory of education compels a different course. For the man or woman of action the knowledge-content of his education becomes of vast importance, and we think that we have proved by results that, in obtaining this knowledge, the disciplinary values are directly, not inversely, proportional to the practical value of the knowledge itself, *provided we understand what powers are to be disciplined.* For the man of action the mental powers most largely called into action are not those most frequently used by the contemplative man. Nothing can be more obvious, for instance, than that the power of observation, in the two classes of men, must differ materially both in range and in nature.

Recognizing these facts, and leaving for the traditional college of liberal arts the preparation of the man of elegant leisure, the orator, the jurist, the philosopher, the theologian, and the pure scientist, we take as our task the training of the man who is wisely and scientifically to develop the production of food and to play a part in the processes of manufacture and transportation; in general, the man and woman who are to take their part in utilizing the forces and materials of nature for man's physical well-being.

To this end certain subjects are chosen—mathematics, pure and applied; the sciences which relate to matter, force, and life as applied to agriculture, the mechanic arts, and domestic life; the English language as a means of intercommunication. These studies properly pursued will give a body of information invaluable for a worker, and, at the same time, train his faculties, not to the profundity of speculation or the abstract analysis peculiar to the philosopher, but to the keenness of observation, the readiness of perception, the sureness of judgment, and the quickness of induction and deduction necessary for the

man who carries on the actual physical business of the world. With these, too, he will have the eye and hand trained to act in prompt, skillful, and automatic unison with the ready and fertile brain.

Recognizing, however, that all this has simply provided for the man as a bread-winner, and that only slight provision has been made for citizenship, for social life, for culture and morality, our land-grant college has, with equal earnestness, insisted on the intertwining of purely cultural studies with the vocational studies just discussed. As equal in importance with the bread-earning studies, it ranks the subjects of history, economics, political science, psychology, literature, modern languages, and ethics, and to these *it gives as much of time as the average college graduate gets in the traditional school of liberal arts.* Frequently its strongest impress, its most lasting influence, is thus exercised on the moral, emotional, cultural side of the student's nature.

The function of such an institution as the Rhode Island College, then, is to give college training and culture to the great middle class of working men, not *in spite of*, but through and with, vocational studies. It seeks to bring culture down to association and hearty companionship with the everyday duties of actual life, indignantly repudiating the doctrine that to be cultured the man of action must renounce his nature and religiously refrain from any preparation that might tend to help him as a workman.

This function we are now performing, so far as our equipment permits, for agriculture and the mechanic arts, and we confidently look to the industrial classes of the State, to the factories, the workshops, and the farms, for patronage and support. Whoever in these is ambitious to make himself a workman of larger skill and knowledge and a nobler man, not by educating himself *out* of the occupation for which nature has adapted him, but more by thoroughly grounding and training himself in it, he it is for whom the State has founded and is maintaining and must enlarge this school.

EQUIPMENT.

To fulfill these functions we have an equipment that, though small, is gradually being brought up to complete efficiency within the limits of our capacity for accommodating students at all.

On the agricultural side, the poultry plant has been perfected so far as the extent of the appropriation would allow. There are still needed a long colony house and yards attached. As we have no place to keep the young stock over from season to season, the hens must be bought of dealers at the opening of the short courses and be sold off at the end of the period, nearly always at a loss because the sale is forced.

The greenhouses have just been finished, and we are now getting stock into them. The plant consists of a head-house (containing the heating system, workrooms, an office room, a photographing room, a room for the care-taker, and two recitation rooms) and a three-division glass house, each division being one hundred feet long. A small sub-section at the main entrance to the glass houses will be used for ornamental foliage plants, largely of the tropical varieties. The other two sub-sections of this north-and-south wing will be used for instructional work in propagating and the like. The south wing of the two running east and west is being used by the experiment station for its soil and other experiments; while the north one will be employed for the growing of single crops, like carnations, lettuce, chrysanthemums, etc.

This fine addition to our equipment will enable us to round out our courses in horticulture, plant-growth, botany, and the like, making them comparable with the best that is done elsewhere.

Dairying, horticulture, and poultry work are the three special directions in which we should, I think, develop our instruction on the agricultural side. We need, pressingly, better facilities for instruction in dairying. With this side of our work brought up and the additions to the poultry plant previously mentioned, I shall feel that we are in a position further to advance the interests of Rhode Island agriculture.

On the mechanical side, too, great and important progress has been made. The shops have been materially improved, so that, while small, the equipment is more than usually efficient. On the electrical side a practically new department has been created. The equipment is nearly all new, of the most modern type, and fairly complete. We are now able to offer a kind, quality, and extent of mechanical instruction commensurate with the dignity of a State whose industrial interests are so largely manufacturing as ours. I earnestly hope that the State, having once put her hand to the plow, will not look back, but will steadily develop and enlarge the mechanical school as need shall arise. Within one hour's ride of many of the greatest mechanical establishments of New England, our school has all the advantages arising from close contact and sympathy with this class of industrial work, while it has, at the same time, the healthfulness and lack of distraction of attention peculiar to a rural location. If properly fostered, the school can and will do a tremendous work for the manufacturing interests of the State.

TUBERCULOUS CATTLE KILLED.

It is with much regret that I feel called upon to record here the appearance of tuberculosis in our college herd. Nine days after my arrival Dr. Curtice reported to me that, on a tuberculin test of the college herd, a number had reacted in an unmistakable way. At that time the herd consisted of thirty-four animals and, to the ordinary observer, seemed to be in excellent health and form. The herd had not been tested with tuberculin for some two years, but to the head of the department of animal husbandry there had seemed to be no pressing need for investigation, and hence he expressed himself as greatly surprised at the result.

The suspected animals were rigidly quarantined, and the Board of Agriculture was communicated with. This board agreed to rid our herd of all diseased animals, provided that, in purchasing new animals, we would rigidly apply a tuberculin test at time of purchase. The process of riddance was a long and tedious one, requiring three tests.

One animal, tested with tuberculin six different times at proper intervals, and examined physically by two different experts, all without result, and finally killed because of persistent suspicious behavior, was found badly infected. This case I mention particularly, in order to place it permanently on record. On August 13 eleven animals were killed by order of the Board of Agriculture. On December 3 six more cows were killed by order of the same Board, and finally, on January 10, 1907, it was determined to kill the cow specially mentioned above as not reacting. The total number, then, of animals killed has been eighteen, valued at $1,210.00. The herd is now entirely free from suspected animals. It consists of twenty-two head (six having been recently bought), as follows: eleven cattle one year old and under, mainly pure-bred Guernseys; seven grade cows, and four pure-bred cows. Effort will be made, by vigilance and by tuberculin tests at frequent intervals, to keep the herd, as it grows again, scrupulously free from this disease.

CHANGES IN THE FACULTY.

The following are the main changes that have been made since the last report. Professor Robert H. Lee, of the department of mathematics and civil engineering, resigned before my election, resignation taking effect September 1, 1906. Miss Elizabeth Watson Kenyon, instructor in language and history, was given leave of absence during the current year, in order that she might take a year of graduate work at the University of Wisconsin. Miss Josephine O. Bostwick, instructor in languages, tendered her resignation, to take effect July 1 of the year 1906. Professor Fred W. Card, professor of agriculture, and Dr. Cooper Curtice, professor of animal husbandry, have both sent in their resignations since the beginning of my incumbency, to take effect at the end of the current school year. Of these, only the last two have I had the opportunity to know more than casually. On the part of all, however, I have found evidences of earnest work. I am sorry that my unfamiliarity with their accomplishments here prevents me from adequately recognizing in this report their proper-

merits. I do know, however, that to Dr. Curtice is almost entirely due the marked success of the now well-established short poultry courses, and that under Professor Card the horticultural department has been equipped with the handsome new greenhouses. The earnest good wishes of many friends will follow them in the new work they each expect to undertake.

EXHIBITS AT AGRICULTURAL AND HORTICULTURAL FAIRS.

The college and experiment station made an extensive and interesting exhibit at the Washington County Agricultural Fair, September 4–7, which attracted much attention and was highly complimented from many sources, especially the potato exhibit from the station and the mechanical and electrical exhibit from the college. Material for exhibition was also sent to the Newport Fair. To the exhibit of apples from the college orchard sent to the show of the Massachusetts Horticultural Society in Boston, October 10–11 last, a handsome silver medal was awarded and is now on exhibition at the college library.

FINANCES.

The finances of the college are in a fairly satisfactory condition, although a gain for the present year corresponding to the approximate gain of $1,500 announced in the 1906 report does not appear in the present statement. The expenses of the present year in the way of renewal of wornout equipment and apparatus have been unusually heavy. To put the poultry plant in a working condition, to take care of the poultry students, and to finish the new equipment so far as to make it serviceable for the short courses has required some $600. The heating apparatus of the boarding hall became very unsatisfactory and costly to operate. The first plan was to consolidate the heating plant somewhat by piping the steam from Davis Hall to the boarding hall. This was arranged for at an expense of some one hundred dollars. On the approach of cold weather it was found not to work satisfactorily at all, and some three hundred dollars had to

be expended in putting in a new boiler and fixing over the piping in the building. Furthermore, the United States Government peremptorily required the re-insurance of the military equipment, the insurance having been allowed to drop for some years past. This took from the treasury during the current year some $75. These items alone will make $1,075 of extraordinary expenditures from the current funds. Besides all this, we have had a man for some months engaged in overhauling the water and heating systems, taking them part by part and putting them into a relatively permanent condition to perform good service. All of this should show in the future in greater efficiency and a relatively smaller consumption of fuel. The total fuel consumption will, however, be larger, because the greenhouse furnaces will prove one of the very largest consumers of coal on the campus, having that large glass-covered area in a somewhat exposed elevation to heat.

It is a satisfaction, however, after all, to be able to report the same balance carried over from this year as was brought from last year.

COLLEGE EXTENSION WORK.

I call your especial attention to the report of the superintendent of college extension for the present year, containing a detailed account of the various lines of work now being developed by him in the State. The pamphlet should be carefully read by all interested in rural development, in order that they may realize the limitations placed on the work by the variety and extent of the demands made upon the department and, at the same time, appreciate the volume and importance of the work actually being done. The department seems to me to be conscientiously performing the work of carrying to those that can not come to the college the college instruction on the agricultural vocations. The opportunities for such work are limited only by the means at our disposal.

COURSES OF STUDY.

For a great while the courses of study have been under the consideration of a committee of our faculty. This committee has made a tentative report to the president, and the faculty, as a whole, are now wrestling with the matter. Three changes seem to me to be necessary. (1) We need to effect consolidation of the numerous courses now offered into two, or at most three, courses quite rigid in the first two-thirds of the work, and allowing such options in the last third as to enable the undergraduate to specialize somewhat more narrowly in the direction toward which he feels himself attracted. The earlier two-thirds of each course should consist of such studies and such exercises as will give the basal knowledge and training requisite for any of the different vocational applications which follow in the later years. (2) We need to introduce into the lower years of each course a larger amount of vocational work of the kind which, while contributing its quota of vocational knowledge, will at the same time give specific training of hand and eye. For instance, in the mechanical courses a much larger percentage of drawing and shopwork should come into these lower years. In the agricultural course, likewise, much more of the time in the freshman and sophomore years needs to be taken up with such subjects as farm-mechanics, stock-judging, elementary soil physics, and the like. At no time during all the undergraduate work, and especially not in the earlier years, should there be any possibility of forgetting that this is one of the schools described by Senator Morrill in the phrase "such as grapple with practical affairs of everyday life and are 'not too good for human nature's daily use'"—a school that "does not generate habits of profuse expenditure and is a healthy home for students, especially for those destitute of hereditary resources, who look only to a life of honorable effort and labor." (3) We need to distribute more uniformly throughout the four years the more purely humanic and cultural studies. It is to be remembered that we are mainly depending on these studies for the cultivation, not so much of the intellectual faculties, as of the æsthetic,

social, and above all the moral, nature. They are therefore taught especially with this end in view. The so-called investigative and research methods in connection with these studies, frittering away a vast amount of time in the effort by roundabout ways of arriving at well-known and easily ascertained facts to simulate processes of real original research, have, I am sure, been greatly overworked everywhere, and are especially out of place in a course where *real* original personal investigation is a necessary daily process in all the naturalistic studies. In our work, therefore, the humanistic subjects are themselves *studied*, not studied *about*, and studied for the specific purpose of enlarging the sympathies, strengthening the finer emotions, developing the moral and spiritual sense. May I be pardoned for injecting here the incidental remark that much of the recent editing, for instance, of literary masterpieces for entrance examinations to the colleges, has consisted in enveloping the poem or prose passage with such a mass of erudition gathered with immense pains from a hundred ransacked libraries that that which was made to be enjoyed becomes a formidable and repellent task; and when the long and thorny path of preface, introduction, analysis, and appreciation has been painfully traversed, and one finally arrives, breathless, overawed, and disheartened, at the masterpiece itself, all power of real enjoyment, of simple appropriation, of living in oneself the passion and glow of the great heart that wrote, is gone and the study fails of that result which should most highly recommend it. I think it will readily be admitted that, at no period of the undergraduate course, should studies pursued for the purposes I have just indicated be suspended.

ARTICULATION WITH OTHER PARTS OF THE STATE EDUCATIONAL SYSTEM.

Another purpose had in view, in the detailed statements just made, is that through this means a clearer understanding of the methods and work of the school may come to the other educational forces of the State. If the high schools of our State thoroughly understood the

work that we are aiming to do, I feel very sure that they would recognize an opportunity for many of their students that they have not previously imagined. I hope that I will not be misunderstood as referring to the hopelessly stupid, lazy, or idle. Our work will demand as great alertness of mind and as much industry and effort as will any other school-work. But I do refer to a class of persons whose imaginations are not fired by the prospect of further linguistic and philosophic studies, who find especial pleasure and interest in studying natural processes or in making things; who, from lack of funds, can not go to one of the larger institutions, or feel the stress of necessity to prepare immediately to enter on some breadwinning occupation. In every high school there are many such to whom a course here would be of incalculable help in entering upon life. Frequently, too, the alternative is, because of lack of funds, a course here or nowhere. Surely, every teacher worthy of the name would be only too glad to know of some way to help these students, and hence it has seemed to me vitally important to bring the school to their attention. I have therefore made appeal to the Board of Education for some recognition as an integral part of the public school system, so that the attention of the teachers might be more fully aroused. Especially have I made effort to establish close relations with the Technical High School of Providence. This school and ours, as having the same theoretical basis and as serving the same classes of people, should have especially close and cordial relations, and the passage from one to the other should, by common effort on the part of the two schools, be made entirely natural and easy. No effort to bring about such a consummation will be lacking on our part.

At the other end of the course, an effort will be made to connect ourselves with the great crowning educational institution of the State. We are in no sense a rival of Brown University. We could not be if we would; we would not be if we could. Our separate spheres are perfectly well defined and entirely distinct. That distinction has, I hope, been already made clear in this report. At the same time, there are a number of our pupils who, after taking several

years with us, find within themselves, newly awakened perhaps, new ambitions and new capabilities. It is embarrassing both to us and to them that we can not, as a matter of routine procedure, inform them under what conditions they can pass from our school to the other. I am quite sure that, with mutual understanding, such an arrangement could be formulated.

RECEPTION FROM THE FACULTY.

I can not permit myself to close this report without formally recording my high appreciation of the cordial welcome extended to me by the members of our faculty. The following note, apropos of a formal reception tendered Mrs. Edwards and myself on November 2, is pertinent in this connection:

To the Faculty of Rhode Island College.

LADIES AND GENTLEMEN:—Mrs. Edwards and myself desire to express to you our high appreciation of the courtesy shown us in the recent reception tendered by your body. The care and forethought displayed in the arrangement of every detail, the scale on which the entertainment was projected, and the success with which it was carried out would require this recognition on our part. But that which especially appeals to us is the kindly spirit of welcome and hearty Godspeed in our work which appeared in all that was said and done.

For all this we offer most sincere and heartfelt thanks, and pledge to you reciprocal interest and devotion to the common cause. We recognize that our success here must depend on the unity of purpose and effort permeating the college community. We welcome this occurrence as an omen of exceeding good.

Very truly,

(Signed) MR. AND MRS. HOWARD EDWARDS.

I respectfully submit the matters formally presented in this report for your earnest consideration.

HOWARD EDWARDS,

President.

JANUARY 15, 1907.

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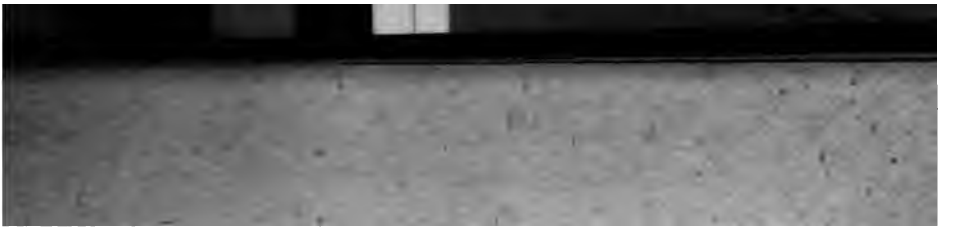

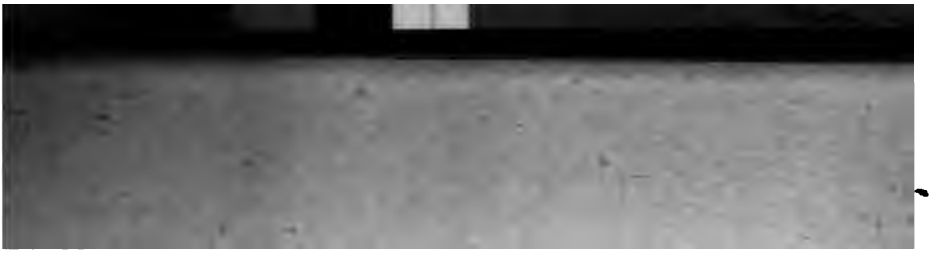

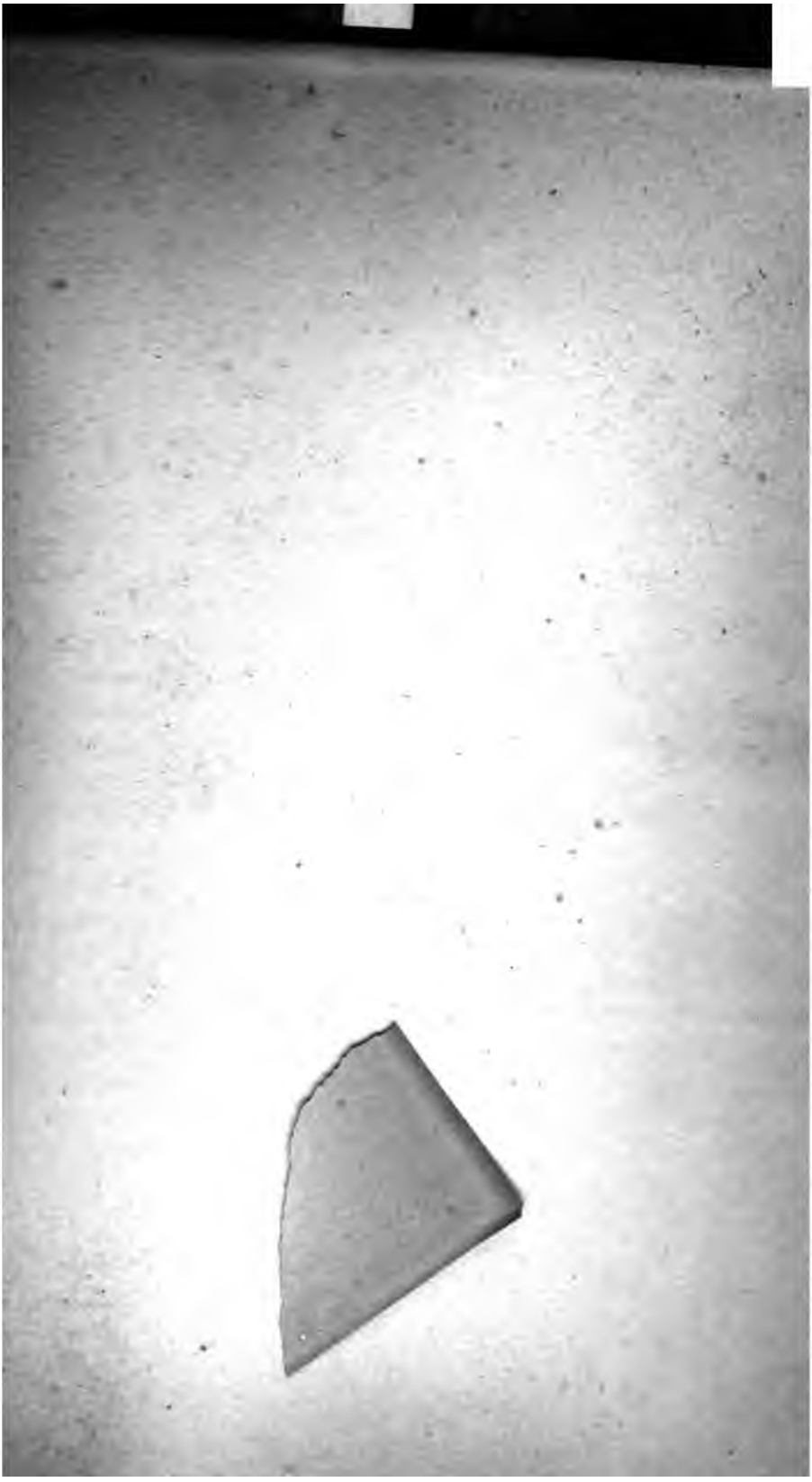

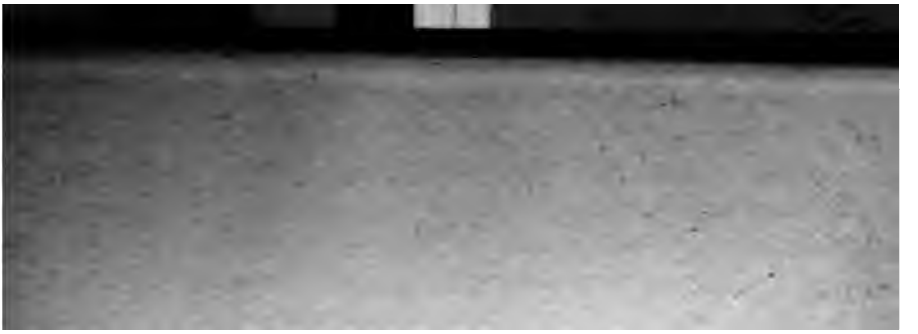

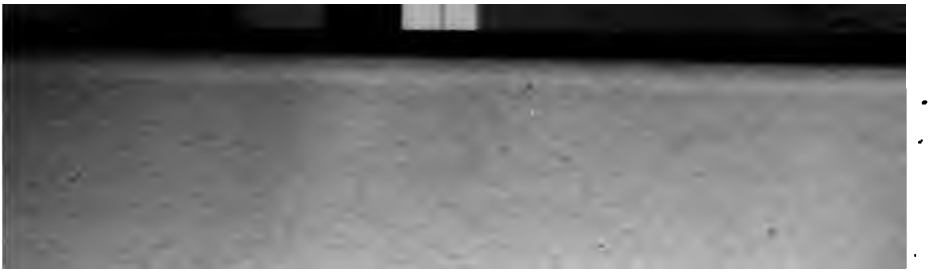

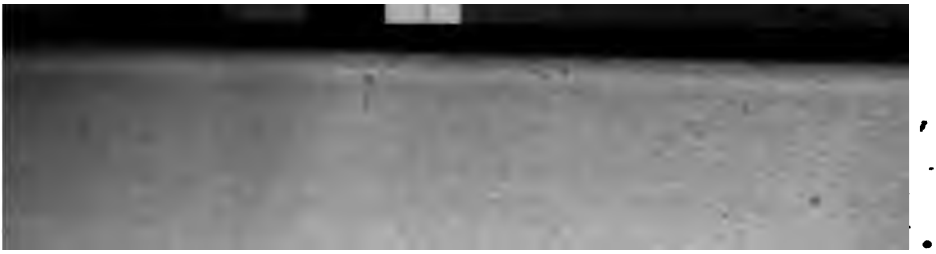

LETIN OF THE RHODE ISLAND COLLEG
F AGRICULTURE AND MECHANIC ARTS.
V NO. 4. FOR FEBRUARY, 190

REPORT OF THE BOARD OF MANAGERS

PART I.

KINGSTON, R. I.

1909.

PUBLISHED QUARTERLY BY THE COLLEGE
MAY, AUGUST, NOVEMBER, FEBRUARY.

[illegible]

[illegible]

BULLETIN OF THE RHODE ISLAND COLLEC
OF AGRICULTURE AND MECHANIC ARTS.
VOL. IV. NO. 4. FOR FEBRUARY, 19

REPORT OF THE BOARD OF MANAGERS

1908 PART I.

[PART II WILL BE THE USUAL REPORT OF THE EXPERIMENT STATION, WHILE PART III WILL BE THE FORTHCOMING CATALOGUE.]

KINGSTON, R. I.

1909.

PUBLISHED QUARTERLY BY THE COLLEGE
MAY, AUGUST, NOVEMBER, FEBRUARY.

ENTERED AT KINGSTON, RHODE ISLAND, AS SECOND-CLASS MATTER.

Rhode Island College of Agriculture and Mechanic Arts.

Corporation.

HON. ROBERT S. BURLINGAME.....NEWPORT COUNTY.
HON. C. H. COGGESHALL.....BRISTOL COUNTY.
HON. CHARLES DEAN KIMBALL.....PROVIDENCE COUNTY.
HON. THOMAS G. MATHEWSON.....KENT COUNTY.
HON. J. V. B. WATSON.....WASHINGTON COUNTY.

Officers of the Corporation.

HON. CHARLES DEAN KIMBALL, President.....P. O., PROVIDENCE, R. I.
HON. C. H. COGGESHALL, Clerk and Treasurer.....P. O., BRISTOL, R. I.

REPORT

To His Excellency Aram J. Pothier, Governor, and the Honorable General Assembly of the State of Rhode Island and Providence Plantations, at its January Session, 1909:

I have the honor to submit herewith the Twenty-First Annual Report of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, as required by law.

CHARLES DEAN KIMBALL,

President of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts.

REPORT OF THE PRESIDENT OF THE COLLEGE.

---

the Honorable Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts.

GENTLEMEN:—I have the honor to present to you, as my report ring the year 1908, the following:

ATTENDANCE FOR 1907–8.

The attendance for the scholastic year ended June 21, 1908, was 3, divided as follows:

aduates	3
iors	12
iors	14
homores	26
shmen	36
cials	10
Total, college	101
-Freshmen	18
-year short course	18
elve-weeks' poultry course	19
Total	156
duct names repeated	3
Total enrollment for year	153

ATTENDANCE FOR 1908–9.

The year has been one of general financial embarrassment, and it s feared that the fall enrollment would show a considerable falling

off in the attendance. During the summer the number of letters requesting some sort of aid by paid labor was abnormally large. Many, too, who had previously announced their intention to attend, withdrew at the last moment, assigning as a reason their inability to raise the necessary funds. In line with these indications came the announcement from various colleges (including Harvard University) that the fall registration in these institutions showed a decrease from the previous year. Notwithstanding all these indications, the registration of the fall term for the current year has maintained almost exactly the same percentage of increase, over that of of the previous year, as had obtained between the attendance figures of that year and those of the year previous to it.

I append tables showing analyses of figures and comparison with other years:

(Poultry Course attendance is not shown in this table.)

Students.	Fall. 1902.	Fall. 1903.	Fall. 1904.	Fall. 1905.	Fall. 1906.	Fall. 1907.	Fall 1908
College	39	48	57	61	76	101	1[illegible]1
Sub-Freshman	39	55	59	40	30	15	[illegible]6
Two-year emergency courses, etc	7	5	9	4	9	22	[illegible]3
	85	108	125	105	115	138	[illegible]0

These figures do not, in any case, include the students of the twelve weeks' winter poultry course, usually numbering twenty. We have at this writing, January 20, nineteen persons enrolled in this poultry course; but six of these are transferred from the two-year emergency agricultural course, to which they will return at the end of the poultry course. The total enrollment to the end of the first half-year, January 29, 1909, is, therefore, not reckoning duplicates, 183, as compared with 153 of the previous year. The figures show an increase, in the college work, of 20 per cent.; and, in the whole atten-

ance, including poultry courses, of 13 per cent. Leaving out the poultry students in the two years, the increase in the attendance of the current year is 23 per cent.

As, during the past year, many questions have been asked which seemed to indicate a desire for more detailed information concerning the student-body, I have thought it best to insert the following tables:

TABLE I.

(Showing attendance by class and sex during school-year 1908–09 up to February 1, 1909.)

CLASS.	Total.	Men.	Women.
Graduates	5	4	1
Seniors	13	10	3
Juniors	20	17	3
Sophomores	31	28	3
Freshmen	40	35	5
Specials	12	8	4
Total, College	121	102	19
Sub-Freshmen	26	19	7
Two-year Short Courses	23	23	.....
Total to January 5	170	144	26
Poultry Twelve-weeks' course, entering January 5	19	19	.....
Total registration, excluding duplicates	183	157	26

TABLE II.

(Showing composition of classes in respect to "new" students—those enrolled for the first time during the current year—and "old" students—those enrolled in the previous year or years. These "old" students are usually promotions from the previous class; thus the seven Freshmen "old" students came into the Freshman class from the Sub-Freshman class of the previous year. The table also shows the average age by class and sex.)

COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

Class.	Total.	Old.	New.	Average Age.		
				Men.	Women.	Both.
Graduate	5	1	4	26 yrs.	29 yrs.	27 yrs.
Senior	13	13	.....	21 yrs. 11 mos.	20 yrs. 4 mos.	21 yrs. 6 mos.
Junior	20	20	.....	21 yrs.	19 yrs.	20 yrs. 9 mos.
Sophomore	31	26	5	20 yrs. 1 mo.	17 yrs. 4 mos.	19 yrs. 7 mos.
Freshman	40	7	33	19 yrs. 8 mos.	18 yrs. 10 mos.	19 yrs.
Special	12	9	3	21 yrs. 10 mos.	25 yrs. 3 mos.	23 yrs.
Total, college	121	76	45	20 yrs., 7 mos.	20 yrs., 9 mos.	20 yrs., 8 mos.
Sub-Freshman	26	7	19	18 yrs., 2 mos.	17 yrs., 10 mos.	18 yrs.,
Short course, two years	23	8	15	20 yrs., 3 mos.	.....	20 yrs., 3 mos.
Total, January 5	170	91	79	.....	.....	.....
Poultry	19	.....	19	27 yrs.	.....	27 yrs.
Totals, excluding duplicates	183	91	92	.....	.....	.....

Table III.

(Showing composition of the student-body by class and course.)

Class.	Total.	Agriculture.	Engineering.					Applied Science.	Home Economics.	Undetermined.
			Total.	Mechanical.	Electrical.	Civil.	Chemical.			
Graduate	5	1	.....	.....	.....	.....	.....	4	.....	.....
Senior	13	3	7	.....	3	3	1	3	.....	.....
Junior	20	3	14	1	6	4	3	3	.....	.....
Sophomore	31	3	26	4	11	10	1	2	.....	.....
Freshman	40	5	28	5	10	10	3	1	6	.....
Special	12	6	3	.....	.....	.....	.....	2	1	.....
Total, college	121	21	78	10	30	27	8	15	7	.....
Sub-Freshman	26	6	8	.....	.....	.....	.....	.....	1	.....
Short course	23	14	9	.....	.....	.....	.....	.....	.....	.....
Total, January 5	170	41	95	10	30	27	8	15	8	
Poultry	19	19	.....	.....	.....	.....	.....	.....	.....	
Total, February 1	183	54	95	10	30	27	8	15	8	

TABLE IV.

(Showing resident and non-resident attendance.)

Class.	Total.	Village residents.	Transported by 'bus daily.	Boarding.			Non-resident.
				Village.	Dormitories.	Both.	
Graduate	5	.....	1	3	.....	3	1
Senior	13	2	1	.....	10	10	.....
Junior	20	1	3	.....	16	16	.....
Sophomore	31	.....	5	4	22	26	.....
Freshman	40	.....	4	11	25	36	.....
Special	12	1	.....	3	8	11	.....
Total, college	121	4	14	21	81	102	1
Sub-Freshman	26	.....	7	8	11	19	.....
Short course	23	1	5	5	12	17	.....
Total, January 5	170	5	26	34	104	138	1
Poultry	19	.....	.....	.....	19	19	.....
Total, February 1	183	5	26	34	117	151	1

TABLE V.

(Showing home residence of students by counties of the State.)

Class.	Total.	Non-resident in State.	From Counties.					From Rhode Island.	
			Bristol.	Kent.	Newport.	Providence.	Washington.	Number.	Per cent.
Graduate	5	1	.....	.....	.....	1	3	4	80
Senior	13	6	.....	1	.....	3	3	7	54
Junior	20	8	.....	.....	1	7	4	12	60
Sophomore	31	5	.....	4	2	13	7	26	84
Freshman	40	14	1	2	.....	15	8	26	65
Special	12	5	.....	.....	.....	5	2	7	58
Total, college	121	39	1	7	3	44	27	82	68
Sub-Freshman	26	4	1	1	.....	7	13	22	84
Short course	23	10	.....	4	2	2	5	13	56
Total, January 5	170	53	2	12	5	53	45	117	69
Poultry	19	9	.....	2	1	1	.....	4	21
Total, February 1	183	62	2	14	6	54	45	121	66

TABLE VI.

(Showing home residence of students by States and by townships of Rhode Island.)

Other States:		
Colorado	1	
Connecticut	3	
Maine	2	
Massachusetts	23	
New Hampshire	3	
New York	12	
New Jersey	1	
Pennsylvania	3	
Virginia	1	
	—	49
Foreign Countries:		
Cuba	3	
Panama	1	
	—	[illegible]
Rhode Island:		
Bristol County—		
Bristol	2	2
Kent County—		
East Greenwich	4	
Warwick	8	
	—	12
Newport County—		
Middletown	2	
Newport	3	
	—	5
Providence County—		
Burrillville	6	
Central Falls	1	
Cranston	1	
Cumberland	3	
East Providence	2	
Johnston	1	
Lincoln	2	
Pawtucket	7	
Providence	21	
Smithfield	1	
Woonsocket	8	
	—	53

: Island:

Washington County—			
Charlestown	3		
Hopkinton	5		
Narragansett	4		
North Kingstown	8		
Kingston Village	8		
Remainder of South Kingstown	8		
Richmond	4		
Westerly	5		
	—	45	117
Total			170

oultry Students:

Other States:

Connecticut	1
Massachusetts	4
New Hampshire	1
New York	1
New Jersey	2

Rhode Island:

Kent County—East Greenwich	2
Newport County—Newport	1
Providence County—Providence	1

TABLE VII.

:ents of students classified by occupation. Poultry students omitted.)

ants or commercial men	36
acturers or men connected with manufactures	24
rs, or men connected with farming	23
ıters	13
ers	11
ians	5
fficers	5
ers	4
men	3
ad men	3
nce agents	3
s	2
r	1
stable keeper	1
	1

Bank cashier	1	
Contractor	1	
Teachers	2	
Deceased	21	
Unreported	10	
	—	170

REMARKS ON THE TABLES.

Table I is intended to show the relative number and distribution of the women in the college. Women have always attended the college sporadically, taking a course composed mainly of science but lacking in coherency and definiteness of purpose. The establishment of the home economics course gives a new impetus and direction to the attendance of women at the college. The number entering the course for the current year is seven.

Table II shows the proportion of students returning for further work, to those entering for the first time, together with the distribution in the respective classes. By comparing the numbers with those of the previous year, it will be noted that, not considering the Senior class, the loss from all causes, including illness, discipline, lack of funds, inducements offered elsewhere, etc., is in the college classes twenty. The total loss, including Senior class, is thirty-two. This loss is offset by an entering registry of fifty-two. This statement rests on the fact that, since the seven of the Freshman class entering from our Sub-Freshman class are really new names in the college work, they should not be reckoned as old students in the college.

This same table contains a careful and detailed statement of average age among the students. It is designed to show the degree of maturity reached by the student at the various stages of his progress. This age census was taken at and near the beginning of the college year. It will be noted (a) that, among the men, the age of the present Senior class at graduation will be nearly twenty-three, which is the full average at the principal colleges of the country; (b) That the present Junior class (men) at graduation will average one month older than the present Senior class; the present Sophomore class (men) will, in the same way, average two months older, and the present Fresh-

man class (men) will average nine months older; (c) That, while the women of the present Sophomore and Junior classes will be considerably younger at graduation than the women of the present graduating class (the Sophomores one year younger and the Juniors four months), the women of the present Freshman class will be a year and six months older; (d) That the maturity of our whole student-body, and especially of the college men and women, will compare quite favorably with that of the colleges usually regarded as standard.

Table III gives the enrollment by courses. In this table, the courses of the Sub-Freshmen are prospective, not actual. Those enumerated in agricultural and engineering work have announced themselves as preparing for that work. Eleven have announced no definite purpose. The total enrollment in agricultural work (not reckoning the Sub-Freshmen) is forty-eight, almost exactly one out of three, for the present year. The ratio of the agricultural students to the whole body of scientific and technical students was, for 1908, according to figures given in the last bulletin of the Bureau of Education, as follows in the institutions named:

All Landgrant Colleges and Universities	1	out of	8.1
Maine, University of	1	" "	9.8
Massachusetts, Agr. College and Institute of Tech	1	" "	4.5
New Hampshire, College of Agriculture and Mechanic Arts	1	" "	3.9
Vermont, University of	1	" "	14.6
Pennsylvania, State College	1	" "	13.0
Illinois, University of	1	" "	10.0
Rhode Island College of Agriculture and Mechanic Arts	1	" "	3.2+

Table IV shows the number boarding in the village and in the college buildings; the number transported daily from and to the railroad station at Kingston; and the number resident within walking distance of the college; while tables V and VI give as circumstantial and detailed a statement as I can make of the home residence of the students. It will be seen that 32 per cent. of our students come from other states, twenty-three from the old commonwealth of Massachusetts, twelve from New York, and three from Pennsyl-

vania. I am deeply concerned that so large a percentage of our students come from outside the State. If, year after year, so many young men and women find it to their advantage to pay tuition (their own landgrant colleges charge no tuition) in order to attend this Rhode Island school, why should Rhode Island people not more generally take advantage of the same opportunities freely offered without tuition? The tables, at any rate, effectively dispose of the statement that this college is a convenient local high school merely.

Table VII is intended to show what classes in the State are served by the college. An inspection will, I think, conclusively show that the classes being reached are the men of the farm, the shop, the factory, and the street, the men and women that are performing the daily tasks of the work-a-day world, the classes which Mr. Morrill had in mind when, in founding the landgrant colleges, he spoke of promoting "the liberal and practical education of the industrial classes in the several pursuits and professions of life." Conspicuously absent from the list are those who might be thought of as conceiving college education to be a patrician affair, preparing men and women for merely the elegant leisure or the directive offices of exclusive social and political life.

ENTERING CLASS.

The requirements for entrance to the Freshman class at the opening of the present year were as follows:

English—Entrance requirements for N. E. Colleges	3
Language—Other than English	1
Algebra	2
Geometry	1
History—Other than United States	1
Science	1
Total	9

The entering class were admitted to college work on the foregoing requirements, by the following methods:

On standings from Sub-Freshman work	6
On standings from high schools	36
On examination standings	5
On completion of defective work from previous year	1
Total	48

The status of the class as to conditions was as follows:

Entering without condition	29
Entering with one condition	7
Entering with two conditions	10
Entering with three conditions, one of which was offset by advanced credit in one subject	2
Total	48

The classification was as follows:

Specials	3
Freshmen	40
Sophomores (with two conditions)	5
Total	48

FINANCES.

On October 24, 1907, the Union Trust Company of Providence osed its doors, having on deposit $19,249.91 of the $30,000.00 com-ig to the college from the 1890 and 1907 Morrill fund for the fiscal ear 1907–8. It is needless to state here the various complications ising from this disaster. Suffice it to say that the State, being bligated for the safety of these funds by the terms of the act accept-g the national grant, assumed responsibility for the nineteen housand and odd dollars involved, by ordering, through an act of he legislature of 1908 affecting all state officials, that all evidences f indebtedness held by our treasurer against the Union Trust Com-any be deposited with State Treasurer Read. Your Board, by formal ction, sent a deputation to request that these funds be exempted om the provisions of this act, the purpose being to carry the defi-it ourselves by borrowing from other funds until such time as final djustment be made with the Union Trust Company, and then to ask

the State to make good the loss, if any, finally falling to the Morrill fund. It seemed to your Board that such a procedure would relieve the State of immediate responsibility for these funds, at a time when other large amounts had to be replaced, and would still not seriously embarrass the college. The legislature, however, decided not to make any exception in our case, and so the bank books, etc., were placed in Treasurer Read's hands. By the terms of the re-organization plan, which was finally adopted, and which Treasurer Read was instructed by the legislature to sign for State deposits, the State received, with other moneys, a cash payment of 10 per cent. of the college deposit, together with a guaranteed certificate for 70 per cent. of the amount due the college, the said certificate being payable, in installments of 10 per cent. of the whole claim, at intervals of six months from and after the first payment. It received also a certificate for 20 per cent. of the whole amount, but with payment made contingent on the business success of the Union Trust Company sufficient to warrant this payment. Under this arrangement there has been collected (Jan. 30, 1909) by Treasurer Read from the Union Trust Company, and turned over to the college treasury, the sum of $4,035.20, leaving still due $15,381.38. One payment has been anticipated, and it is stated that, on February 4, proximo, two other payments will be made. Meanwhile, the United States fiscal year ended June 30, 1908, and it had been necessary, from time to time, to make payments from the Morrill funds thus tied up, so that the work might go on and the usual and necessary report might be made to the United States government at the end of the fiscal year. This was accomplished by borrowing the necessary amounts from the current funds and from the State Maintenance fund, nearly all of which, for the year, was thus consumed before the first of July. On the first of July, the usual remittance for the new fiscal year from Washington enabled us to replace from the Morrill fund the amounts that had been transferred from the State fund; so that, at the present time, the State, through the Union Trust Company, still owes the Morrill fund the said sum of $15,381.38.

With the exception of this occasional embarrassment for current funds to pay current bills, the finances of the college are in excellent condition so far as debit and credit are concerned. The college has no debt, and is undertaking nothing that the funds now in sight do not permit of carrying through. Recent re-adjustments in the direction of a more just and accurate separation of college and station workers, enabling the station to enlarge and strengthen its work and the college to meet the needs of a student-body that has enlarged in six years in the ratio of one to three, have increased the salary list materially; but this increase is warranted by the increased efficiency of all departments, by the increase in college teaching due to the threefold increase of college students, and by the increase in the Morrill fund from which to make the payments. From the same increased fund, larger expenditures for apparatus and teaching equipment of all kinds have been made. The need, however, in this direction is still very great.

It is also to be noted that there has been no repair fund for the current year from which to draw, and all repairs for the year (and they have been somewhat extensive) have necessarily been paid from the maintenance fund, causing a shortage in that fund, and necessitating otherwise inexcusable limitations on department expenditures not payable from the Morrill fund.

Receipts and net expenditures (expenditures less foreign tuition, board, room rent, etc.)

First Half Year.

Expenditures	$32,027 68
Receipts (one-half of regular income plus $1,334.27, balance from special funds)	30,087 27
Deficit	$1,940 41

Second Half Year.

Expenditures	$29,484 91
Receipts (one-half of regular income)	31,250 00
Credit balance	$1,765 09

Add laboratory deposits to cover laboratory material used, and included in expenditures, said deposits being held as separate funds not yet distributed to the departments	$529 60
	$2,294 69
Deduct deficit for first half-year	1,940 41
Credit balance for this year	$354 28

Extraordinary expenditures included in the previous statement:

Special road building	$632 28
Pair of horses	500 00
Cows purchased	113 33
Remodeling dairy barn	479 11
Total	$1,724 72

CHANGES IN FACULTY.

Resignations.

During the year we have lost one teacher by death. Harold F. Huntley, instructor in chemistry, died August 21, 1908. He had been with us only a short time, having succeeded Mr. Bidwell, who resigned in December of the year 1907. But he had greatly endeared himself to the college community, both students and faculty, by ability in his special work, by varied accomplishments, and especially by a rare beauty of spirit that attracted everyone.

Professor William Elisha Drake resigned his position of professor of mechanical engineering, to take effect September 1, 1908. Professor Drake is a man of varied powers. He had been with the college for fifteen years, and was greatly liked in the college community and in the village. He resigned to take a position in Fall River for which he seemed to be peculiarly fitted by nature and training.

There was very general regret when it became known, on November 18, 1908, that Miss Helen L. Johnson, professor of home economics, had had so sudden and severe an attack of illness as to necessitate a serious operation without having her moved from the room she was occupying in the boarding hall. The operation was entirely

:cessful, but it was evident that Miss Johnson would not be able undertake further work for several months. Under the circumnces, it seemed best to both her and myself that she take a leave absence for the remainder of the college year. Her father, acdingly, several weeks after the operation, removed her to their ne in Watertown, New York. Advices indicate that she is making ›id improvement in health.

By action of your Board, taken early in the spring, Mr. Walter S. dman, instructor in electrical engineering, was given leave of abce for one year, without pay, to take further work at the Massaısetts Institute of Technology. He removed to Boston in Sepnber, and is prosecuting his work under favorable conditions.

The resignation of Mr. Thomas A. Chittenden, instructor in meınical engineering, was accepted by your Board, to take effect ›tember 1, 1908.

:t was a disagreeable surprise to us all when Miss Josephine O. stwick, instructor in history and language, offered her resignaı, some six weeks after beginning the year's work. It seems that, ›re returning in September, she had a very flattering offer to go to ls College, California, in January, 1909, and had accepted it.

n this connection it is well to say that there seems, at some time the past, to have existed an understanding that the connection a teacher with the college might be honorably terminated by ee months' notice on either part. For reasons at once suggesting mselves, such an arrangement is eminently unfair to the teacher l unfortunate for the college. I suggest that your Board adopt ›rm of contract with teachers, to be signed by both parties, deng the length of time for which the contract runs, the kind of vice to be given, the compensation and method of payment of ıe, and the length of vacation period with or without pay.

n April of the year just past, seeing the probability of our being e to have in line during the coming (now current) school year re than one hundred men for drill, I wrote the War Department, ting the probability and asking the detail of an officer. I was

greatly pleased, some weeks, later to receive information that my request would be granted. This, of course, relieved us of the necessity of re-employing Captain Maurice H. Cook, of Providence, who, for a year, had been giving very acceptable service. Accordingly, at the end of the academic year, July 1, 1908, Captain Cook severed his connection with the college. I desire here to express my sincere appreciation of Captain Cook's efficiency in satisfactorily re-establishing the military department.

ADDITIONS.

In pursuance of the announced purpose to appoint an officer, the War Department on September 1, 1908, detailed Henry G. Stahl, First Lieutenant, Sixth Infantry, as such officer. Lieutenant Stahl was born in Bloomington, Illinois, on June 11, 1872. He enlisted in the regular army as private on December 30, 1898; obtained appointment as Second Lieutenant by competitive examination, July 2, 1901; graduated with distinction in 1904 from the Fort Leavenworth Infantry and Cavalry school; and was promoted, May 1, 1905, First Lieutenant.

Messrs. George E. Adams and Warren B. Madison, professors, respectively, of agriculture and animal husbandry, came into the teaching work at the beginning of the year previous to the one now under consideration. In order, however, to have a complete record, I insert their names here. Mr. Adams is a graduate of this college, serving for some time as assistant in horticulture in the Experiment Station, where, since 1901, he has been a successful experimenter in agronomy. He has also taken work for two seasons in the graduate school of agriculture at Cornell University. Since he has been in charge of the department of agriculture, the work has notably inproved; and, if plans now on foot can be carried out, we shall be able in the near future to announce still greater strengthening of the work.

Mr. Madison, also a graduate of this college, is a man of large practical experience both in the actual management of farm animals and also in teaching. His main teaching work was done at the Mount

Hermon school. Mr. Madison, with his excellent practical judgment of cattle, has made marked progress in the re-building at the college of a herd of sound, healthy, clean, paying milk producers, and at comparatively slight cost. He is slowly but surely developing among them a strain of pure-bred young Guernseys (perfectly sound) from the diseased Guernseys being experimented upon at the isolated hospital barn.

To fill the vacancy made by the resignation of Professor Drake, Professor Royal L. Wales, B. S. of Massachusetts Institute of Technology, 1902, was appointed, July 1, 1908, professor of mechanical engineering. After graduation, Professor Wales was instructor at the institute. He next was made instructor in mechanical engineering at the State College of North Carolina; from there he was promoted to be assistant professor of the same subject at the University of Tennessee, in which position during three years he made an excellent record.

In the same department, to succeed Mr. Chittenden as instructor in mechanical engineering, Mr. J. R. Eldred, B. S., R. I. C., 1900, was appointed. Mr. Eldred was engaged in practical work until 1905. At that time he was appointed to an instructorship (civil engineering) at Cornell University,—which he held for three years, resigning to accept the appointment here.

To take up the work laid down by Mr. W. S. Rodman, Mr. Jacob A. Fottler, B. S., Massachusetts Institute of Technology, 1908, was appointed instructor in electrical engineering.

In the department of chemistry, to succeed Mr. Huntley, Mr. Francis H. Smith, Ph. B., Brown University, 1905, was appointed. Returning to Brown University as assistant in chemistry, he received the degree of M. S. in 1906. In 1907, he went to Purdue University in the same capacity (assistant in chemistry), coming here in September, 1908.

When Miss Johnson was so suddenly incapacitated for work, in November, we were very fortunate to find, on leave of absence doing graduate work at the Teachers' College of Columbia University, Miss

Alice M. Loomis, of the State Normal School, Peru, Nebraska, who was willing to drop her studies for the time being and finish the year for us as professor of home economics. Miss Loomis is a graduate of the Kansas Agricultural College.

On Miss Bostwick's withdrawal in December, Miss Florence H. Myrick, B. S., Wellesley College, 1892, was appointed as instructor in language and history to finish the year. Miss Myrick has had teaching experience in several private schools and colleges.

In the spring of 1908 it was determined to find a man who should know thoroughly the art of growing vegetables, shrubs, flowers, etc., who should possess a degree of scientific education sufficient to enable him to understand the processes of the art from the scientific standpoint, and at the same time should be able to instruct both children and adults in the art. It was no light task to find such a person; but we think he was found in the person of Mr. Ernest K. Thomas, an Englishman by birth. Mr. Thomas was especially trained in the methods of the Kew Gardens, coming to this country to take the work of the botanic gardens in the University of Pennsylvania. In Philadelphia he also voluntarily aided in school-garden instruction. He was accordingly appointed instructor in horticulture. He was utilized in starting the school-garden work in Providence; and I have the best testimony that he made a marked success in a very difficult work. He is now giving instruction at the college. Mr. Thomas is the only real addition to the faculty during the year; as all the other new members take the places made vacant by resignation or death.

THE NEW BUILDING.

A reference to my previous report will show the steps that were taken by your body in presenting to the legislature and the people of the State the urgent necessity for a new building, and the consequent request for a special appropriation of $75,000 for the purpose of constructing a suitable domitory. The request was incorporated in a resolution which provided for the appropriation of $75,000 for

the purpose (1) of erecting a building to contain lodging accommodations for one hundred students; an assembly hall, a dining hall and kitchen, with accessories, together with such other conveniences as may be requisite and attainable; (2) of remodeling Lippitt Hall in such manner as shall give larger space for the library and better accommodations to certain scientific departments; (3) of remodeling Davis Hall and other buildings so as to fit them for the use of a department of home economics, and for properly housing young women. The bill was amended in the finance committee of the house so as to make $35,000 available during 1908 and $40,000 available in 1909. In this form it passed the house and went to the senate. In the finance committee of that body the amount carried by the resolution was reduced to $25,000 in 1908 and $30,000 in 1909, while the three-fold purpose was left unchanged as to extent and character of the work to be done. In this form, the resolution passed the senate, went back to the house, and finally became a law April 29.

We had had as our professional advisers, in the preparation of plans submitted to the legislature, the firm of Stone, Carpenter and Sheldon. The head of this firm, one of the most highly respected architects in the State, on the passage of the law, informed me that it was impossible to do the amount of work required by the law and pay for it with the appropriation it carried. This report I carried to your body, at its May meeting, and further negotiations and inquiries were authorized. On June tenth a resolution authorized the arrangement of an architects' competition for plans, under the advisory management of architects Stone and Ely of Providence. Terms of competition were arranged and advertisements were inserted in the newspapers, and in response some twelve sets of plans were sent in. It was, however, September 5 before, under the advice of Messrs. Stone and Ely, the Board felt itself prepared to make an award. The determining factor in making such award was the element of cost. Your body had resolved that no plan would be received which could not surely be built well within the appropriation. The tentative

selection of architect was accordingly made under the assurance of your advisers, that the plans so selected could be put into stone or brick for a sum within the appropriation. You went still further, and required *written estimates* from reputable contractors showing that the plans tentatively selected could be built upon within the appropriation. Satisfactory estimates having been furnished, Mr. L. P. Langworthy, of Providence, was finally notified that his plans had been selected.

But this did not put matters into shape for advertising for contractors, although, meanwhile, time had been rapidly passing. The plans so adopted had to receive necessary alterations. The detailed specifications had to be drawn up and subjected to many conferences. One advantage, however, of delay was the fall in prices. The final outcome was that it was January 1 of the present year before contractors' bids were advertised for. The contractors were instructed to put in a bid for a building with outer walls of brick, and another for the same building with outer walls of stone. Furthermore, they were instructed to state additional amount necessary for steel stairways. The bids were as follows:

Bidder.	Building Material.		With Steel Stairway.	
	Brick.	Stone.	Stone.	Brick.
Keeher & Smith	$54,268 00	.....	.....	$55,068 00
Gilbane Co	41,783 00	$52,583 00	$53,083 00	42,283 00
E. K. Watson—				
Concrete underpinning	39,268 00	51,418 00	52,518 00	40,368 00
Granite underpinning	41,268 00	.....	.....	.....
Darling & Slade	43,051 00	49,051 00	50,367 00	44,367 00
Hartwell & Kingston—				
Concrete foundation	36,800 00	49,800 00	50,250 00	37,250 00
Stone foundation	36,700 00	.....	.....	.....
Stone underpinning	38,400 00	.....	.....	.....
Harding & Hamlyn	32,950 00	47,950 00	48,735 00	33,835 00
T. I. Reynolds—				
Concrete underpinning	32,900 00	46,600 00	47,700 00	34,000 00
Granite underpinning	37,100 00	.....	.....	.....
Lincoln N. Oatley (no check)	41,500 00	43,000 00	.....	.....
J. W. Bishop & Co	35,864 00	40,764 00	41,864 00	36,964 00
Woodbury & Leighton	38,428 00	39,578 00	.....	.....
J. F. Smith & Co	36,127 00	38,927 00	39,468 00	36,668 00
R. A. Sherman's Sons Co	35,092 00	36,877 00	37,627 00	35,842 00

Your Board having decided to build of stone, the contract was accordingly awarded to R. A. Sherman's Sons Co., of Westerly, the lowest bidders on that material. They are skillful and trustworthy men, and we confidently expect that the building will be finished within the contract limit, September 1, 1909.

I have detailed somewhat at length the successive steps taken so far in the planning and construction of this building so as to show the peculiar difficulties that accumulated and delayed action for what seemed to many an inexplicable length of time.

It must not be imagined, either, that the contract building is even approximately that for which we asked the original appropriation. A comparison of the plans shown in my previous report with those now adopted will show a difference of fully one-third in actual size, and the accommodations are in every way correspondingly diminished. At the same time, we shall have a building which at its

utmost capacity will meet all requirements of the original resolution, and prove a very great help in meeting the needs of the institution.

I desire, here, to express for the college our high appreciation of the action of members of the general assembly who, in many instances, against strong pressure, stood firm to their convictions of right and gave us the help so sorely needed. To these and to the members of the grange, State and local, to our alumni, to friends of education all over the State, and finally to the members of your body who have so untiringly given your time and energy to the advancement of this undertaking, the best interests of the State are indebted in a degree that will loom larger as the years go by.

THE APPOINTMENT OF A COMMISSION ON THE COLLEGE.

In the course of the past year it has been several times stated by me that an incidental, yet very important, result to be brought about by asking for a relatively large appropriation at the hands of the State was to arouse the attention of the people to the importance of utilizing to the full extent, and in the wisest manner, the educational funds coming yearly from the general government to the State. It is time that the people should know what they are heir to, and should definitely determine how they will utilize the inheritance. This purpose of attracting public attention has been quite successfully accomplished. In the course of the year the legislature created a commission to take under consideration and report upon the function of the land-grant college and its relation to the educational machinery of the State. The commission appointed by the General Assembly and the Governor, as finally constituted, consists of Hon. Walter E. Ranger, State Commissioner of Schools; Hon. George F. Weston, principal of the Technical High School, of Providence; Hon. Charles H. Ward, of Newport; Hon. James E. Sullivan, of Narragansett Pier; and Hon. H. J. Cartier, of Arctic. The commission has gone very thoroughly into the matter, and we look for an impartial and statesmanlike report.

THE CARNEGIE FOUNDATION.

A gratifying development of the year has been the announcement that, through further gifts from Mr. Carnegie to the Foundation for the Advancement of Teaching, the land-grant schools would be admitted to the benefits of the Foundation. This is a very great gain, as it greatly aids these schools in obtaining and holding the most talented men on their teaching list without inordinately increasing the expense relatively to the schools now on the Carnegie lists. One of the conditions of admission is entrance requirements amounting to fourteen points on the Foundation's scale.

WIDENED ENTRANCE REQUIREMENTS.

In order to take advantage of this extremely important aid in securing good men and holding them—the one vital thing for a school—we have deemed it necessary to widen the range of requirements for entrance. The plan at present being considered and already partially adopted is to add to the present requirements, as named on page fourteen of this report, plus one-half year of solid geometry, a series of subjects from which a student may offer five further points, as follows:

Language	3 years additional.
History	1 year additional.
Science	3½ years additional.
Civil government	1 year.
Drawing	1 year.
Physiography	1 year.
Household economy	½ year.
Manual training	½ year.
Farm operations	½ year.

The fact that for the past year an increasing number of incoming students have offered credits upon a much wider range of subjects than the essentials contained in our present requirements seems, also, to warrant such a step. The plan is to add two and one-half points for entrance next September, two the year following, and one the year subsequent to that.

Coupled with this is the proposal to allow as many as four entrance conditions, requiring these to be made up by free tutoring in Sub-Freshman classes as need may require; to abolish the Sub-Freshman course as such, and to classify as specials those having from two to four conditions. This plan does *not* contemplate the abandonment of the non-collegiate short-course work in agriculture and mechanic arts as now conducted.

EXTENSION WORK.

During the past year much excellent work has been done in the extension department. I would especially commend the "Back-Lot School,"—a series of six conferences held on three nights in two successive weeks in Providence, in February and March. The attendance on these conferences was phenomenal, the object being to help people to utilize spare ground around their houses in raising vegetables. The number of people giving their names and addresses as desiring to follow the course was nearly six hundred. The addresses were obtained in order to be able to send them further information and notice of further work. For the coming year the State Board of Agriculture, which is fully informed and entirely sympathetic, will co-operate with us, and it is proposed to carry the work to Newport and to continue it in Providence.

In conjunction with the Board of Agriculture, and with the support of some of the Providence grammar school masters, several school gardens were carried on in Providence. Especially the one in Roger Williams park was a pronounced success.

COMMENCEMENT.

The commencement exercises of last June were very successful. The baccalaureate address, June 14, was delivered by myself, the subject being "Through a Glass Darkly." The commencement address was given by Professor Horatio B. Knox, of the State Normal School, his subject being "The Only University in the World,"—a

remarkably vivid and accurate presentation of the training received by the farm-boy, from his daily life and work in the pioneer days. The attendance on both these occasions, as well as at the faculty reception on Monday night, was unusually large.

SCHOLARSHIP.

I am quite sure that there has been a marked advance, not only in the scope of the work done, but also in the quality. Larger demands are made on the student's power of concentration and on his steadiness of purpose. I think we are rapidly developing greater power of self-direction, self-restraint, and initiative in our student-life.

PER CAPITA COST, ETC.

During the discussions of the college in the papers and elsewhere, much was said that was evidently born of spleen, of impatience with new ideas of education, of lack of understanding of purposes and methods, or of ulterior designs. Necessarily, the fault found in such cases was trivial, or beside the mark, or lacked foundation in fact. Some objections, however, were honestly made, and deserved and received respectful attention. One, especially, concerning the cost to the public, was of that nature. That education is costly cannot be denied; it is far more costly than is generally recognized. Whether it is in a given case unduly so can best be determined by comparison. The U. S. Bureau of Education has just issued a bulletin which is quite helpful in making such comparison. I have therefore compiled from it the first two columns of the following table, taking in the New England States, representative States in the West, the South, and the Pacific coast, and the median, or average for the whole United States. The table of per capita cost has been computed by dividing the total public income (which is approximately also the total expenditure) by the whole number of students as reported, including short special course, and summer students.

The public income was determined by deducting from the gross income as given (1) the amount going from the general government for Experiment Station purposes—since this has nothing to do with the teaching work; (2) The amounts appropriated by the States as special appropriations—for building purposes mainly; (3) the student payments. The reason for deducting the student payments is simply that the institutions do not report them uniformly. Some report only tuition fees; others include incidental fees; still others include all payments, as for board, room rent, uniform, books. Manifestly, if board and room rent are included, it adds at once some $200 per capita, and the comparison with another institution where the board cost is the same, but does not appear in the receipts of the institution, is entirely misleading.

I submit the tables as giving fair data for judgment as to cost, number of teachers as compared with students, number of agricultural students, and tendency to develop more largely in mechanical than in agricultural lines. The tables seem to me to show conclusively that the figures for Rhode Island College compare favorably with those of other institutions *working under similar conditions and reporting the facts on the same basis.* Whatever conclusions are drawn, I have the satisfaction of presenting the actual facts and of presenting them impartially, comprehensively, and without disguise, so far as lies in my power.

TABLE CONCERNING STATE COLLEGES.

Table of Per Capita Cost, Prepared from 1908 Report of Department of Education, omitting Special Building Appropriations, Experiment Station Funds, and Student Payments.		1908. Ratio of Teachers to Students. One Teacher to	Ratio of Agricultural Students to Rural Population. One Student to	Ratio of Mechanical Students to Urban Population. One Student to	Ratio of Agricultural to Mechanical Students. One Agricultural to
State Colleges in U. S..	$182	12.3 Stu.	7,700 Pop.	1,571 Pop.	3.20 Mech.
Maine.....	144	11.2 "	4,400 "	833 "	4.15 "
New Hampshire.....	606	6.5 "	14,000 "	3,771 "	4.61 "
Massachusetts.....	*214	*11.3 "	1,083 "	1,834 "	6.36 "
Rhode Island, 1908....	419	6.6 "	969 "	5,500 "	3.36 "
" " 1909....	378	8.0 "	.....	.....	.....
Connecticut.....	**382	**12.3 "	2,960 "	.....	.....
Vermont.....	153	6.2 "	7,000 "	459 "	5.40 "
Univ. of Wisconsin....	236	9.9 "	2,000 "	1,004 "	1.28 "
Illinois, University of..	133	8.5 "	5,000 "	2,278 "	2.58 "
California, Univ. of....	531	12.7 "	5,500 "	974 "	6.29 "
Purdue Univ., Indiana.	155	13.7 "	7,000 "	648 "	5.81 "
Iowa State College.....	210	16.0 "	5,800 "	558 "	2.12 "
Michigan, University of.	162	11.6 "	7,500 "	628 "	7.73 "
" Agricul. Coll.	248	12.0 "	.....	.....	.....
Nebraska, University of	138	†119.9 "	.....	.....	.....
New Jersey, Rutgers College.....	304	8.5 "	.....	.....	.....
New York, Cornell Univ	255	6.8 "	7,000 "	3,425 "	5.56 "
Ohio, University of....	210	14.0 "	10,000 "	2,180 "	4.24 "
Virginia, Polytechnic Institute	178	10.1 "	.....	.....	.....
Virginia, University of.	166	8.9 "	.....	.....	.....
" Military Inst.	325	15.0 "	.....	.....	.....
‡Harvard University...	433	.....	.....	.....	.....
New England.....		.....	2,900 "	2,043 "	4.64 "
Pennsylvania.....		.....	63,000 "	5,672 "	13.50 "
Minnesota.....		.....	15,000 "	2,503 "	3.27 "
Kansas.....		.....	10,700 "	531 "	5.87 "
Missouri.....		.....	9,000 "	1,741 "	3.07 "
Georgia.....		.....	26,000 "	847 "	8.84 "
Alabama.....		.....	11,300 "	800 "	1.90 "

* Reckons in 210 summer school students (in total of 462).

** Reckons in 129 summer school students (in total of 257).

† Figures manifestly inaccurate.

‡ See report of president and treasurer, 1907. Obtained by dividing total expenditures other than for buildings by the total attendance in all schools as then reported.

THE DAIRY HERD.

The development in dairy lines, while modest, has been satisfactory. The dairy barn has been fully disinfected, and one-half of it has been remodeled in entire accordance with modern dairy practice. In conformity with our agreement with the State Board of Agriculture, we kept out from that barn all cattle until they had been tested at least twice at intervals of six months, and had stood the test. At the present time, we have the remodeled side of the barn entirely filled with a sound and thrifty herd, averaging 7,000 pounds of milk per cow, the milk testing from 400 to 4,000 bacteria per cubic centimeter.

The tuberculous cattle are still undergoing treatment at their isolated hospital, and we have several young from that herd that under test are entirely healthy. The experiment will be continued for at least another year.

THE NEW DIVISION OF THE SCHOOL YEAR.

For many reasons it has seemed necessary to change the division of the school year. Up to the beginning of the present school year, September 8, 1908, we reckoned three terms of twelve weeks each and classified our students, accordingly, three times each year. The present year is divided into two terms of eighteen weeks each, and hereafter the two-term, or semester, division will be maintained.

NEEDS OF THE COLLEGE.

A college is never other than in need; but in some cases needs are more pressing than in others. Certain things appear to me quite urgently needed here at the present time. Would that private benevolence might supplement a depleted public treasury!

(1) We should have at this time some $5,000 to expend in improving and beautifying our grounds. The location is an ideal one for a bit of landscape gardening that should be a perennial source of

pleasure to all who come here; but to that end, money to remove rocks, plant trees and shrubs, and build roads is needed. Nothing would more powerfully help the school to ingratiate itself with the people.

(2) A hall for the pure science subjects (botany, chemistry, biology, physics, mathematics), to contain also recitation rooms for language, history, economics, etc. This would place our equipment in surroundings that would lend proper dignity to the good work actually being done. It would also enable us to use Lippitt Hall for an engineering building, provided that we could remove therefrom the library; and to that end is needed

(3) A library and administrative building. I have made approaches to Mr. Carnegie to see if he would not aid us, as he has aided Maine and New Hampshire, but without success. If your Board could devise a channel by which appeal might go to Mr. Carnegie directly, I believe that it would be successful. There are many wealthy and public-spirited men in the State. Perhaps with a proper appeal, help in this matter might come from that source.

(4) A trolley-line from the college to the railway station. The bridging of this two-mile chasm between the college and the outer world would go very far toward diminishing misunderstanding, removing objection, and increasing respect and esteem for the institution. This must be accomplished by private enterprise, and it can, I think, be shown that such a road would pay dividends.

(5) The establishment of scholarships to aid needy students. It pains me very greatly to be obliged to refuse requests for aid that come from evidently deserving young men and women. We make our student-labor help these deserving people just as far as it will go. We now have on our pay-roll between forty-five and fifty students, who maintain themselves in part (or sometimes entirely) by paid labor here. But as the patronage of the school increases, the amount of paid labor becomes relatively smaller, and the number

that cannot be aided enlarges. I wish that the benevolence of our people might be directed hither. The field among our own industrial classes is, I am sure, large and fertile.

MR. COGGESHALL.

In conclusion, speaking for myself and, I know, also, for the college community as a whole, I desire to express our earnest appreciation of the long and effective service to this college so patiently and unselfishly given by the retiring member of your Board, Mr. Coggeshall. I assure him of our sincere esteem as a man, and entire respect as an officer. The good-will of this community will always be his.

Respectfully submitted,

HOWARD EDWARDS,

President.

February 1, 1909.

TREASURER'S REPORT.

I. COGGESHALL, *Treasurer, in account with the different funds of the* RHODE ISLAND COLLEGE OF AGRICULTURE AND MECHANIC ARTS, *for the year ended December* 31, 1908, *as follows:*

MORRILL FUND OF 1890.

		Cr.	Dr.
1.	To balance on hand		$13,119 55
11.	Cash from United States for year ending June 30, 1909		35,000 00
	By instruction	$27,872 08	
	Text-books and reference books	125 90	
	Apparatus	771 31	
	Stock and material	538 99	
	Tools and machinery	65 16	
31.	Balance on hand	18,746 11	
		$48,119 55	$48,119 55

MORRILL FUND OF 1862.

		Cr.	Dr.
1.	To balance from last year		$66 80
	Cash from land-scrip fund through State treasurer		2,500 00
	By instruction	$2,226 80	
	Text-books and reference books	299 65	
	Stock and material	18 35	
31.	Balance on hand	22 00	
		$2,566 80	$2,566 80

STATE—MAINTENANCE.

		Cr.	Dr.
Jan. 1.	To State appropriation		$25,000 00
	By salaries	$3,996 56	
	Traveling	826 71	
	Postage, stationery, and printing	611 53	
	Construction and repairs	1,701 22	
	Oil and gasoline	233 79	
	Fuel	2,384 93	
	Telephone and telegraph	135 33	
	Feed	1,540 66	
	Freight and express	434 43	
	Labor (student labor, janitor, farm, shops, etc.)	8,405 83	
	Fertilizer	375 10	
	Commencement	240 87	
	Laboratory apparatus and material	737 71	
	Library	556 83	
	Home economics apparatus and furnishings	813 38	
	Agricultural lectures (poultry school, etc.)	189 52	
	Sheep and swine	61 00	
	Advertising	212 25	
	Road grader and road construction	253 79	
	Furniture	44 92	
	Seeds and plants	107 85	
	Horseshoeing	88 83	
	Team hire	56 00	
	Fee for graduate school of agriculture	25 00	
	Miscellaneous supplies, office, stables, etc	965 96	
		$25,000 00	$25,000 00

STATE—BUILDINGS FUND.

		Cr.	Dr.
April 29.	To appropriation ($25,000 only available in 1908)		$55,000 00

		Cr.	Dr.
ril 29.	By expenditures — construction dormitory and assembly hall	$1,184 33	
	Balance available for 1909	53,815 67	
		$55,000 00	$55,000 00

STATE—REPAIRS AND IMPROVEMENTS.

		Dr.	Cr.
ı. 1.	To balance from last year		$1,267 47
	By labor and material	$1,267 47	
		$1,267 47	$1,267 47

STATE—BOILER FUND.

		Dr.	Cr.
r. 3.	To State appropriation		$5,858 05
	By purchase, installation, and housing two boilers	$5,858 05	
		$5,858 05	$5,858 05

CURRENT FUND.

		Dr.	Cr.
ı. 1.	To balance from last year		$11,152 05
	Interest		22 23
	Department fees		2,276 83
	Department sales		5,800 04
	Department service		982 95
	Tuition		1,122 52
	Dormitory fees		2,545 37
	Miscellaneous		66 26
	By salaries	$1,728 28	
	Traveling	263 00	
	Postage, stationery, and printing	473 23	
	Construction and repairs	1,776 63	
	Oil and gasoline	142 68	
	Fuel	1,653 23	
	Telephone and telegraph	81 75	

			Cr.	Dr.
Jan.	1.	By Feed	$1,000 66	
		Freight and express	155 44	
		Labor (student labor, janitor, farm, shops, etc.)	5,607 84	
		Advertising	739 68	
		Entertainment	447 70	
		Pasturage rental	50 00	
		Dormitory rental	173 32	
		Horses	500 00	
		Wagon and harness	176 00	
		Furniture	234 32	
		Laboratory material	197 89	
		Surety on military ordnance	19 91	
		Miscellaneous	617 14	
		Reserve fund	2,000 00	
Dec.	31.	Balance on hand	5,929 55	
			$23,968 25	$23,968 25

TRUST FUND.

			Cr.	Dr.
Jan.	1.	To boarding—boarding hall		$15,149 20
		Boarding—Wells house		774 40
		Store		3,341 52
		Interest applied to deficit		398 88
		Deficit		1,448 71
		By balance last year	$2,093 17	
		Boarding—boarding hall	14,272 50	
		Boarding—Wells house	960 98	
		Store	3,786 06	
			$21,112 71	$21,112 71

HATCH FUND—EXPERIMENT STATION.

			Cr.	Dr.
Jan.	1.	To balance available for year ended June 30, 1908		$8,190 00
July	1.	United States appropriation for year ending June 30, 1909		15,000 00

			Cr.	Dr.
July	1.	By salaries	$8,003 16	
		Labor	2,075 16	
		Publications	51 72	
		Postage and stationery	332 64	
		Freight and express	125 92	
		Heat, light, water, and power	452 60	
		Chemical supplies	117 59	
		Seeds, plants, and sundry supplies	211 54	
		Fertilizer	266 76	
		Feeding stuffs	851 97	
		Library	506 58	
		Tools, implements, and machinery	214 15	
		Furniture and fixtures	386 00	
		Scientific apparatus	179 11	
		Live stock	52 00	
		Traveling expense	297 43	
		Building and lands	501 53	
		Contingent expenses	15 00	
Dec.	31.	Balance due on appropriation	8,549 14	
			$23,190 00	$23,190 00

ADAMS FUND—EXPERIMENT STATION.

			Cr.	Dr.
Jan.	1.	To balance available for year ended June 30, 1908		$3,911 99
July	1.	United States appropriation for year ending June 30, 1909		11,000 00
		By salaries	$7,292 35	
		Labor	1,152 48	
		Postage and stationery	104 04	
		Freight and express	62 87	
		Library	210 54	
		Tools and machinery	34 67	
		Scientific apparatus	113 75	
		Chemical supplies	124 33	
		Furniture	12 37	
		Feeds	509 66	
		Live stock	86 40	

			Cr.	Dr.
July	1.	By Traveling expense	$126 46	
		Seeds, plants, and sundry supplies	354 91	
		Buildings and lands	10 00	
		Heat, light, water, and power	434 13	
		Fertilizer	101 03	
Dec.	31.	Balance due on appropriation	4,182 00	
			$14,911 99	$14,911 99

MISCELLANEOUS—EXPERIMENT STATION.

			Cr.	Dr.
Jan.	1.	To balance from last year		$4,626 37
		Department receipts		1,382 83
		Interest		175 67
		By labor	$ 75	
		Postage and stationery	2 46	
		Freight and express	35 91	
		Tools and machinery	9 45	
		Chemical supplies	75	
		Furniture	79 65	
		Traveling expense	90	
		Contingent expenses	52 12	
		Buildings	2 60	
		Fertilizer	55 80	
		Seeds, plants, and sundry supplies	13 37	
Dec.	31.	Balance on hand	5,931 11	
			$6,184 87	$6,184 87

I hereby certify that the above account is correct and true, and truly represents the details of expenditures for the period and by the institution named.

C. H. COGGESHALL,
Treasurer.

This is to certify that we, the undersigned, auditing committee of the Board of Managers of the Rhode Island College of Agriculture and Mechanic Arts, have examined the accounts of C. H. Coggeshall, Treasurer of said College, and find the same correct.

CHARLES DEAN KIMBALL,
R. S. BURLINGAME,
Auditors.